With new CAD/CAM and controls technologies, machine shops find the fastest, most efficient ways to cut metal and mold their manufacturing processes. At the Controls & CAD/CAM pavilion in the Lakeside Building at IMTS, visitors will see the latest CNC tools and manufacturing software aimed at refining part programming and improving machining processes.

Image courtesy Gibbs and Associates

**GibbsCAM 2015 with its new UKM engine provides highly accurate machine simulation on machines of virtually any configuration.**

**Machine Controls, CAD/CAM Software Build Factory Efficiency**

The latest CNC and software technologies can help shops optimize machining tasks and boost metalcutting productivity.
Multitasking machine tools have been at the forefront of CNC programming advances, with new systems taking advantage of minimal setups on these “done-in-one” multitasking machines. Taking multitasking programming to a new level, the new GibbsCAM UKM (Universal Kinematic Machine) that will be introduced at IMTS by Gibbs and Associates (Moorpark, CA) capitalizes on a completely reengineered CAM engine, one that takes advantage of newer multitasking machines, yet still offers backward compatibility when used with older machine designs.

Under development for about five years, the UKM engine will enable much more accurate modeling of machine tools, said Bill Gibbs, president of Gibbs and Associates, and it will also help reduce the costs of developing postprocessors and simulation models. “Even though we’ve been doing MTM [multitask machining] longer than anybody, we saw a need in the industry,” Gibbs said. “The machines are evolving in creative ways.”

These innovative MTM architectures have posed problems for software developers, said Gibbs, noting that CAM systems were originally designed either to be used with a lathe or with a mill. “There’s no limit to how creative machine-tool designers can be,” said Gibbs. With the new UKM system, kinematic models are used more effectively, offering dramatically improved rendering of simulations that are able to more precisely simulate these highly complex MTM systems. “It is very, very flexible in how we can assign axes and alignments,” Gibbs added.

“There’s no limit to how creative machine-tool designers can be.”

In addition to the UKM, GibbsCAM 2015 adds many new tool types including Barrel, Dovetail, Convex Tip, E-style ISO insert, and tools defined by solids. The software also features dynamic 3D viewing of tools and toolholders in the tool dialog, allowing users to accurately visualize the tools they are selecting for the job. GibbsCAM 2015 will include the new Adveon tool management system licensed from Sandvik Coromant (Fair Lawn, NJ), Gibbs said, which is also available to other CAM software developers.

Smarter Toolpaths

Another trend in CAD/CAM is the use of a new class of smarter toolpaths, said Ben Mund, marketing manager, CNC Software Inc. (Tolland, CT), developer of Mastercam. “You see this across a variety of CAD/CAM companies where toolpaths are taking advantage of new algorithms and increased computer processing in order to have a lot more intelligence about tool load and tool motion,” Mund said. “These new types of smarter toolpaths yield a number of benefits including extending tool life, reducing cycle time, and reducing machine wear. They can also make traditional projects, like cutting hard materials, easier.”

At the CNC Software booth, visitors will see the latest Mastercam release which offers improved usability and workflow, Mund said. “The other thing we are showing is our Dynamic Motion technology,” he said. “This is a machining technique that we’ve had for a number of years, and it is slowly expanding across the suite of Mastercam products. It powers many of our most commonly-used toolpaths. In a nutshell, Dynamic Motion toolpaths can take full-depth cuts while maintaining optimal cutter load and smooth motion. We have field tested this for about half a decade, and the results we see are remarkable.”

At IMTS, Mund said he’s interested in seeing all the new developments in machine tools and cutter technologies, as well as 3D printing advances. “We have a lot of gear heads here—one thing that is a big draw for us is checking out the advances in multi-axis machines and mill-turn machines,” Mund said. “We are also interested to see first-hand any of the new cutters that are being rolled out. Although we stay in contact with cutter manufacturers, seeing them first-hand helps us to know what we can incorporate into our software. Lastly, we’re interested in the advancements of 3D printing—in particular the hybrid machines that do both additive and subtractive machining.”

High-Speed, High-Efficiency Machining

At Delcam’s booth, visitors can see the application of the company’s Vortex high-efficiency clearance strategy, which debuted in PowerMill but has now been added across Delcam’s software line with the addition into its FeatureCAM, PartMaker and Delcam for SolidWorks CAM systems. “High-efficiency and five-axis machining have been important to our users for some time and will continue to trend,” said Mary Shaw, Delcam North American marketing manager. “Visitors will discover how they can gain unprecedented speed and accuracy with the 2015 CAM software releases. Delcam continues to spend more on development than anyone in the CAM industry. In staying with the overall theme of speed, Delcam
Integrated robotic parts handling and teach-in of a Kuka robot is demonstrated with Siemens’ Sinumerik CNC controller.

will invite attendees into our booth to take a 30-second test drive to see our product advantages.”

Vortex gives the fastest safe metal removal from solid carbide tooling, in particular with designs that give deeper cuts by using the full flute length as the cutting surface, noted Shaw. It can be used for two- and three-axis roughing, three-plus-two-axis area clearance and for rest machining, and it gives benefits when machining all types of materials, including titanium, tool steel and alloys such as Inconel. Vortex produces toolpaths with a controlled engagement angle and so maintains the optimum cutting conditions for the toolpath that would normally be possible only for the straight-line moves. The constant feed rate achieved with Vortex is a fundamental difference from other high-speed roughing techniques. A series of trials run by Delcam on different machine tools within its Advanced Manufacturing Facility has shown that a time saving of at least 40% is not untypical, she added, with the biggest percentage savings being found when cutting steel on a Huron machine with SGS Z-Carb MD cutters.

Better NC Simulation

Improvements in cutting tool use in the Vericut NC simulation, verification and optimization software will be showcased at the booth of CGTech (Irvine, CA). The company will demonstrate how Vericut is integrated with Kennametal’s NOVO tool assembly application. CGTech also recently announced its new partnership with Machining Cloud GmbH (Stans, Switzerland) to ensure that Vericut users have access to complete, updated cutting-tool data, thereby enhancing the accuracy of their simulation and verification.

“Customers are putting a great deal of pressure on their suppliers to reduce costs and prices, even on parts and contracts that have been in place and fine-tuned for years. CGTech, as a software supplier providing tools to improve our customers’ manufacturing processes, believes the pressure is also on us to help our customers meet their customers’ cost reduction demands,” said Bill Hasenjaeger, CGTech product marketing manager. “Better and broader implementation of Vericut’s validation and optimization tools can help.”

At IMTS, CGTech will show new features and improvements in Vericut’s cutting optimization, easier simulation implementation, and broad coverage of more manufacturing processes, Hasenjaeger said. “IMTS is always a great place to see the latest factory technology in our machining domain,” he said. “With Vericut’s broad application across industries and around the world, we always have to be prepared to implement new factory innovations quickly for our early-adopter customers. Additive processes integrated in conventional five-axis machining cells, such as metal spraying or laser cladding, are especially interesting for us. We’re always on the lookout for new cutting tools and new cutting methods, as well as new features on CNC controls and the machines they’re controlling.”

CNC Advances

A new affordable CNC, the FANUC Oi-F machine control, will be introduced at IMTS by FANUC America Corp. (Rochester Hills, MI), said Paul Webster, engineering manager for the Hoffman Estates, IL-based CNC product line of FANUC America. “We’ve designed a lot of commonality in our CNC systems, between all our hardware and our software,” Webster said.

The new Oi-F CNC is the latest entry to FANUC’s best-value Oi Series controls aimed at production shops, Webster noted, and the Oi Series is the company’s highest-selling series of controls ever. “What’s exciting about the Oi-F is what it will have in common with the 30i Series controls, with a common look and feel,” Webster said. “We’ve dedicated a lot of effort to make
everything look similar so it’s easier for operators to work with different controls models on the factory floor.”

The new Oi-F CNC also features a 15” display option and features Bluetooth capabilities that are part of the common CNC platform. “That makes the CNC a lot more PC-like in functionality,” Webster said. Another development is the addition of multitouch touchscreen capabilities. “We’re adding that capability to the Panel i touchscreens, so now you’ll be able to do multitouch, and pinch to zoom,” Webster said.

**Robotics-CNC Integration**

Integrated robotic parts handling and teach-in through the CNC controller is an emerging trend in highly-automated factories, as well as job shops today, according to Rajas Sukthankar, business manager, Machine Tool Business Unit, Siemens Industry Inc. (Elk Grove Village, IL). “We have worked closely with a robotics partner to develop our mxAutomation platform and Run MyRobot application,” Sukthankar said. “This enables the full operation and control of both the machining functions and the robot on one CNC using a dedicated second channel.” Not only does this streamline operators’ tasks, but it also eliminates the need to operate a separate robotic controller with its own language and training requirements, he said.

“In another critical area of CNC machining, we see more exotic material substrates, more nontraditional technologies, such as 3D, ECM, and lasers, for example, plus the hybrid machines that combine laser and milling work, making inroads in the market—and Siemens’ open architecture is well-positioned to respond to the specific requirements of these machining technologies,” Sukthankar said.

Siemens is now offering a full line of CNCs covering standard, mid-range and high-end machining operations and at IMTS the company will present these CNC technologies, including the Sinumerik 808D Advanced entry-level job-shop.
control and the 828D mid-range CNC with dedicated functionality for milling and turning operations. “These platforms share a common HMI interface with our Sinumerik 840D sl, the industry standard in multiaxis, multichannel CNC for aerospace, automotive and medical part manufacturing,” he said. “On the software side, our full medical process chain from CAD to CAM to CNC, facilitated by NX CAM and Teamcenter concepts, will be demonstrated for the unique and always nonlinear world inside the human body.”

“In a nutshell, Dynamic Motion toolpaths can take full-depth cuts while maintaining optimal cutter load and smooth motion.”

Around the show, Sukthankar is interested in seeing new innovations, particularly in automation and additive manufacturing technology. “I have a keen interest in nontraditional machining, as well as additive manufacturing and the challenges of making a factory run under more automated conditions,” he said. “These require entirely new approaches to motion control and data management, in both the machine-to-machine and plant-wide communications areas.

“As always, of course, I will be visiting our machine tool customers to listen. That’s always the beginning of any good conversation between Siemens and our machine builders. As they face greater and more unique challenges in their global marketing, we must respond with both the product and software solutions to help them succeed—today and into the future. It is a truly exciting time in the machine tool world, as new materials, new manufacturing techniques, both additive and subtractive, plus a growing presence for robots and other automation, continue to emerge in the market.”

Fast, Automated Solutions

At CNC developer Fagor Automation Corp. (Elk Grove Village, IL), the emphasis is on speed with accuracy, as customers get nanometric resolution combined with high speeds from Fagor’s CNC lineup, noted Todd Drane, Fagor Automation marketing manager. “Our customers are requiring exceptional part finish, while turning up the feed rate at the same time,” Drane said. “Thus the trend is advanced algorithms that improve servo performance and block throughput from the CNC.” Visitors to Fagor’s booth will see a complete automation solution, Drane added. “We are one of the few manufacturers that offer a complete automation package, which includes the design and manufacturing of the CNC control, digital servomotor system for both the axes and spindle, the PLC and precision linear and rotary encoders,” he said, “plus we offer a complete digital readout system line. The benefit is our products are engineered to bring out the performance from each other due to the systematic communication between the various components, thus the customer can be sure they are truly receiving the benefits of today’s advanced automation technology.”

Fagor’s lineup at IMTS includes an introduction of its HSSA in-program tuning that allows the customer three different levels of servo performance to ensure the highest performance possible for their individual application, Drane said. Fagor also will introduce the new 8060 high-performance CNC that is designed specifically with the intent of bringing aerospace quality technology to the small and mid-size high-performance machine market. The company also has a new line of nanometric-resolution linear encoders as well as three series of noncontact precision encoders. “The Fagor 8060 CNC is equipped with proprietary advanced features necessary for high-speed machining,” Drane said, “but is simple to operate and program due to the IIP Programming system that presents the user interface in a conversational presentation.”

—Patrick Waurzyniak

Simulation Software

Vericut Version 7.3 CNC machine simulation, verification and optimization software simulates all types of CNC machining including drilling and trimming of composite parts, waterjet, riveting, robots, mill/turn and parallel kinematic/hexapods. The software operates independently but can also be integrated with leading CAM systems and the company will showcase Vericut’s full integration with the CAD/CAM and machine tool industry. Machine simulation with Vericut detects collisions and near-misses between all machine tool components such as axis slides, heads, turrets, rotary tables, spindles, toolchangers, fixtures, workpieces, cutting tools, and other user-defined objects. Users can also
set up “near-miss zones” around the components to check for close calls and detect over-travel errors. Machine movements can even be simulated while stepping or playing backwards in Vericut’s Review Mode. With Vericut Reviewer, users can view animations of the CNC machining process. At IMTS, the company will demonstrate Reviewer files operating on an iPad.

**CGTech**  
Ph: 949-753-1050  
E-mail: info@cgtech.com  
Web site: www.cgtech.com

**Cloud-Enabled CAM**  
The new cloud-enabled Esprit CAM software allows programmers to easily select tools based on part features in minutes to find ideal tooling. With the Esprit MachiningCloud Connection, programmers have access to complete, up-to-date tooling product data, which cuts hours of programming time by eliminating the need for manual tool creation. The cloud-based CAM offers a list of recommended cutting tools based on machining features and machining sequences, and simulates with more accurate 3D models of tool components and assemblies. The software also includes upgrades that benefit customers in tooling, automation, simulation and shop-floor collaboration. Simulation enhancements in Esprit protect machine-tool investments with powerful simulation and collision-detection tools that allow users to see the whole picture, while new collaborative tools make teamwork seamless on the shop floor.

**DP Technology Corp.**  
Ph: 805-388-6000  
E-mail: esprit@dptechnology.com  
Web site: www.dptechnology.com

**Precision CNCs**  
The TNC 640 is the company’s latest high-end milling control with milling and turning capability. The TNC 640 CNC features a new design, improved 3D program verification graphics and advanced Dynamic Prediction, which guarantees calculation of the optimum speed for precise and smooth surfaces. Also on display will be the TS 460, the first touch probe that
enables the user to transmit the trigger signal either over infrared or radio waves—without having to change the touch probe. This gives the users the benefits of a very wide transmission range (radio) and fast signal transmission (infrared).

Heidenhain Corp.
Ph: 847-490-1191
Web site: www.heidenhain.com

New CAM Engine
The company will showcase the new GibbsCAM UKM (Universal Kinematic Machine), an updated CAM engine that powers the upcoming release of GibbsCAM 2015. UKM is a complete reengineering of the company's CAM engine that changes the way the software relates to machine definitions and machine tools, blurring the line between the definition of mills and lathes. GibbsCAM UKM can handle any number of axes in any direction, with multiple tools cutting simultaneously, allowing users to program and accurately simulate any current or future machines. The system offers dramatic improvements to rendering and machine simulation that provides the most accurate simulation available, giving customers the confidence that what they see on the computer screen is what will happen at the machine. Significant changes have also been made to the tooling functionality of GibbsCAM 2015, and an entire new category of tooling, called Intermediate Tooling, has been added. GibbsCAM 2015 also includes many other improvements, from geometry creation to toolpath strategies, including additional high-speed machining (HSM) strategies.

Gibbs and Associates
Ph: 800-654-9399
Web site: www.GibbsCAM.com

Affordable CNC
The new Series 0i-F CNC offers users a new commonality of design and 15" (380-mm) display option in an affordable new CNC platform that includes built-in Bluetooth technology and a digital servo adapter with new EtherCAT interface. The Series 0i-F features common operability, maintainability and networking options as the Series 30i CNC along with having a highly compatible PMC ladder, translating to easier operation and maintenance across the plant floor. The seamless combination of using the same motors, amplifiers, peripheral devices (safety machine operator’s panel, I/O module/unit, iPendant, interface unit for handy machine operator’s panel) as the Series 30i further simplifies ease of use and maintenance of the Series 0i-F. Additional features on the Series 0i-F include I/O Link i, FANUC Serial Servo Bus (FSSB) high-speed rigid tapping, function for loader control, tolerance control, axis name expansion, quick program restart, flexible path axis assignment, EtherNet/IP and Profinet.

FANUC America Corp.
Ph: 888-FANUC-US (888-326-8287)
Web site: www.fanucamerica.com

High-Speed CAD/CAM
The new PowerMill 2015 CAD/CAM package offers higher feed rates and material-removal rates, shortening cutting times by as much as 70%, with the Vortex area-clearance strategy, which produces safe toolpaths with a much deeper cut by using a controlled engagement angle that maintains the optimum cutting conditions for the whole toolpath. Companies using PowerMill for either positional or continuous five-axis machining also will benefit from improvements to the collision checking within the software.
With this update, collision checking has been changed so that warnings can also be flagged for near misses. A number of improvements have been made to the PowerMill interface, including a clearer form for the strategy selector that makes navigation easier when choosing which strategy to use. In addition, three new curve-creation options have been added to the curve editor—ellipse, spiral and helix—for creating patterns or boundaries when generating toolpaths.

**Delcam plc**
Ph: 877-335-2261
Web site: www.delcam.com

**Advanced CNC**
The new 8060 CNC system is meant to bring aerospace quality technology to small and mid-size machines. This CNC is equipped with proprietary advanced features necessary for high-speed machining, yet it maintains the best machining surface finish while providing maximum accuracy. The control is offered with a 10.4” (35.6-mm) high-resolution LCD TFT color or touchscreen, Ethernet, USB and Tele-Diagnosis capability. The 8060 can control up to six axes plus three separate spindles with two different execution channels and includes Auto-Tuning system setup capability. Performance capabilities include block processing speeds of <1 ms while analyzing the toolpath with advanced high-speed block look-ahead, using nanometric resolution. Combined with the Fagor Adaptive Real-time Feed & Speed control (ARFS), this enables the CNC...
to analyze machining conditions such as spindle load, servo power, tool-tip temperature and adapts both the axis feed rate and the spindle speed for maximum machining performance productivity. The result is a reduction of cycle time coupled with a superior part finish, extended spindle and servomotor life, and improved tool utilization.  

Fagor Automation Corp.  
Ph: 800-423-2467  
www.fagorautomation.com

**Dynamic CAM Toolpaths**  
The latest Mastercam machining software features the new Dynamic Motion technology that can slash machining times by as much as 75%. Included in the Mastercam X8 release, the new Dynamic Motion toolpath technology helps machinists get the most of any machine in the shop. The X8 release also introduces many significant capabilities, including a more efficient workflow, improved usability, and much more. With this release, the dynamic motion technology is expanded across the entire Mastercam product line with speed and efficiencies built into the software, at no extra cost to users. Dynamic Motion adds several benefits, including dramatically extending tool life; reducing cycle time; saving wear and tear on machines; cutting hard materials more easily; and use on virtually any machine in the shop. Mastercam X8 also introduces a completely new Solids Workflow that makes constructing and editing solids more intuitive than it’s ever been. The update also delivers improved usability and the ability to customize the way machinists work.  

**CNC Software Inc.**  
Ph: 800-228-2877 or 860-875-5006  
Web site: www.mastercam.com

**CNC Innovations**  
The company will showcase its CNC solutions that range from the job shop to the retrofit operation, moldmakers to mass-production departments at the world’s leading automotive, aerospace and medical manufacturers. Company’s CNC solutions include the Sinumerik 808 CNC for job shops, offering a basic CNC with power, flexibility and reliable performance to the job shop. The 808 rounds out the growing family of CNC models, which now span the range from the basic three-axis machines to the most advanced five-axis machining centers using the Sinumerik 840D CNC, with full robotic integration, secondary operations management and transfer line capability, all on a single control.  

**Siemens Industry Inc.**  
Ph: 800-879-8079  
Web site: www.usa.siemens.com/cnc

**CAM Workflow Software**  
The company will demonstrate its Edgecam Workflow software application specifically designed for manufacturers to help reduce costs, improve quality and achieve shorter lead times. Workflow helps users understand the component topology and the required manufacturing environment, accelerating toolpath generation. The software aids in loading and position-
ERP Document Control
To avoid costly mistakes, manufacturing firms need the latest versions of spec sheets, drawings and other customer documents during production. Managing this critical task just got easier with the new Version Management System (VMS), an add-on to the company’s Document Control ERP module. VMS electronically attaches documents to jobs and offers several new document security features to ensure production workers have the most current version for every job. To streamline the document management process, VMS stores files directly in the database, adding more security for greater protection of document/data integrity. Multiple versions of files can be stored simultaneously, allowing for a version history of each file. Users can easily reference or roll back to older file versions to see historical changes on all documents, and Check-In/Check-Out functionality makes it impossible for two users to change a file at the same time. Users can protect information with individual and group-level permissions and limit document exposure with print and e-mail security options.

Global Shop Solutions Inc.
Ph: 800-364-5958
Web site: www.globalshopsolutions.com

Shop-Floor Software
The DataXchange and Process Control is cloud-based machine monitoring and data-collection software. This system uses MTConnect as one of the data-collection methods. The cloud-based DataXchange allows for simple and quick startup and eliminates the need for large up-front investments for a machine monitoring system. With support for MTConnect, DataXchange can collect a wealth of information from the latest machine tools as well as offering native support for Fanuc Focas and hardware solutions for older legacy machine tools, welders, CMMs, and even manual machines. DataXchange features cloud technology that can be deployed either as a SaaS (Software-as-a-Service) solution or as an On-Premise solution. Key features include configurable real-time dashboard, e-mail integration, and a version history of each file. Users can easily reference or roll back to older file versions to see historical changes on all documents, and Check-In/Check-Out functionality makes it impossible for two users to change a file at the same time.

Global Shop Solutions Inc.
Ph: 800-364-5958
Web site: www.globalshopsolutions.com

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Notifications and mobile apps, along with the ability to track multiple definitions of cycle time concurrently for each machine. Real-time analytics on incoming data allows for decisions to be made with ease and to execute changes immediately. 

**Shop Floor Automations Inc.**
Ph: 877-611-5825
Web site: www.shopfloorautomations.com

**ERP Software Shop Kiosk**
The Visual EstiTrack Shop Kiosk is an optional add-on application to Henning Software’s Visual EstiTrack ERP software. Shop Kiosk is designed to be either run on a user’s desktop machine or as an information bulletin board kiosk on a large wall-mounted monitor in a shop’s public area. The application has been designed as a replacement for a shop’s traditional paper-based bulletin board method of distributing information to its employees, and it provides an electronic way to share and distribute information from Visual EstiTrack. The kiosk allows employees to view just about any type of content including shop metrics, orders, human resource information, videos, PDF documents, and other materials. The information summarized and graphed in Henning Software’s Executive Dashboard can also be displayed on the kiosk.  

**Henning Industrial Software Inc.**
Ph: 330-650-4212
E-mail: info@henningsoftware.com
Web site: www.henningsoftware.com

**NC Simulation**
The latest NCSIMUL Machine and NCSIMUL Player 9.2 software will be demonstrated with the recently introduced mobile system, called WYSIWYC (What You See Is What You Cut). Demonstrations will show an embedded version of NCSIMUL Player 9.2 on a fully rugged, mobile Panasonic Toughpad IP65 connected to machine tool controllers such as Fanuc CNCs. With this capability, shop-floor operators and managers are able to interact remotely—in 3D and in real time using intuitive touch controls—with one or several CNC machines and their machining processes, as they execute the CNC program on the machine. The 3D animations of CNC machining processes, as well as related work instruction sheets, are directly accessible from the mobile application. The software gives users a realistic preview of the process and real-time 3D simulation of machines and machining showing what is really cut and operations currently in progress. The software also can extend to DNC machine status monitoring, ERP and MRP.  

**Spring Technologies Inc.**
Ph: 617-401-2197
Web site: www.springplm.com

**CAD/CAM Programming**
PartMaker Version 2015 offers improved support for the latest multitasking machine tools, more powerful milling and turning functionality and a unique approach to postprocessing for multi-axis turn-mill centers and Swiss-type lathes. The system features improved machining algorithms, giving users even more capability while retaining the software’s ease of use. PartMaker 2015 includes specialist support for a new vertical mill-turn and vertical turret lathes, as well as support.
for turret-based Swiss lathes with programmable $B$-axis live tooling attachments. Also headlining the latest PartMaker is its approach to postprocessing for multitasking machine tools, with improvements to the software’s postprocessing technology and new software functionality to help guide users on how best to take advantage of multitasking machines.

**PartMaker Inc.**  
Ph: 215-643-5077, ext. 304  
Web site: www.partmaker.com

**PDM Software**
TopSolid’Pdm Server 7 is a complete, easy-to-use solution to manage technical data. TopSolid’Pdm software seamlessly manages all the relationships between documents, from design through to manufacturing. TopSolid’Pdm centralizes all information related to a product that can be difficult to find (CAD designs, specification sheets, enhancement requests, design notes) in one location, and thus improves product quality by eliminating errors associated with incomplete or duplicate data. Company also will show its VoluMill TopSolid Edition that includes optional VoluMill machining strategies integrated into its TopSolid’Cam 7.8 software, offering algorithms for toolpath calculation. In addition, Missler will showcase the G-code simulation software, NCSIMUL Machine, which is available as an option and can be used directly within TopSolid’Cam. Also to be shown with TopSolid 7 software is the Adveon tooling library, an option that offers smart management of cutting parts, collisions and driven points, via the Internet, to any supplier’s tool library.

**Missler Software Inc.**  
Ph: 630-889-8055  
Web site: www.topsolidusa.com

**Manufacturing Production Software**
Company will showcase the latest version of its Production Module software used by manufacturers to maximize potential of current manufacturing processes and dramatically improve finished part quality. Production Module 7.0 users will see several enhancements including: advanced toolpath interpretation; XML, which will reduce simulation setup time by more than 70%; physics kernel improvements; 3D and 2D optimization algorithm improvements; Japanese translation improvements; a German user interface; and other enhancements. At IMTS, attendees will see examples of how Production Module is used from aerospace, automotive, medical, heavy equipment, cutting tool and oil and gas industries. The

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**Shop Management-ERP Software**

"I've always liked EstiTrack’s real-time production information. Now, with the new quality module, I'm able to identify quality issues in the same manner. This satisfies our ISO record keeping."

– Michael J. Reader, President, Precision Plus, Inc., Elkhorn, WI

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largest benefits to Production Module users will be cycle time reductions of 30–80%, while simultaneously improving tool life. Engineers who use Production Module are able to work offline to gain better tool life information than other simulation packages or trial-and-error testing. To obtain this information, Production Module uses a library of more than 120 experimentally validated material models to reduce machining time, improve product quality and get products to market faster.

Third Wave Systems
Ph: 952-832-5515
E-mail: sales@thirdwavesys.com
Web site: www.thirdwavesys.com

Measurement Monitoring Software
The Equator comparative gaging system now includes new process monitoring software that instantly displays measurement results of inspected features, as well as the measurement history of each feature, via a monitoring window added to the shop-floor user interface. The intuitive Organizer front-end software works with Renishaw's comprehensive MODUS program to allow operators to manage the remastering process based on temperature limits, number of parts or time since the last master. A status bar graph shows inspection results for the last part measured as a proportion of tolerance either side of nominal. Operators can configure the system to set extra warning limits on part features, beyond the pass/fail tolerance limits already set by the inspection program, allowing them to take action before a process reaches 100% of tolerance. The bar graph turns orange at the warning limit and if the pass/fail tolerance is exceeded, the bar turns red and remastering is enforced with an on-screen message to the operator.

Renishaw Inc.
Ph: 847-286-9953
Web site: www.renishaw.com

Dual-Channel CNC
Company will showcase the cost-effective dual-channel CNC kernel for designers of small-to-medium-size machines with up to five axes. The latest addition to the Flexium+ platform is the dual-channel Flexium+ 8 CNC kernel, which provides an exceptionally high level of control flexibility. At any time, either CNC channel can be used to control a spindle motor and four simultaneously interpolated axes—and control can be passed on-the-fly from one channel to the other. This simplifies the design of complex machines with multiple synchronization requirements, such as thread or gearcutters, and in many cases eliminates the need for a second CNC kernel. NUM will also be providing software demonstrations of complete conversational and cycle solutions developed specifically for the North American market. Based on Flexium+ systems, these include solutions for gear hobbing, shaping and grinding, OD/ID grinding and metal spinning.

NUM Corp.
Ph: 630-505-7722
E-mail: sales.us@num.com
Web site: www.num.com

Industrial Vending System
The Cribmaster X3 is a modular industrial benchtop vending solution that offers compact vending anywhere within manufacturing operations without sacrificing valuable space on the shop floor. The X3 combines both helix and carousel dispensing, designed for smaller-scale point-of-use vending of high-volume inventory. The system is suitable for storing and distributing any type of PPE or MRO inventory, especially small items such as single inserts which have been difficult to dispense in the past. The system features simple log-in and operating.
process with authorized users scanning an employee badge or other optional login method. Users select the required item, enter the quantity on the touchscreen interface, and remove the dispensed items to do the task at hand. The software records the transaction and the database is automatically updated. System includes CribMaster’s inventory management software that handles a large range of functions including cost accounting, purchasing optimization, supply chain tracking, inventory level monitoring, and cost saving opportunity identification.

_CribMaster_
Ph: 888-419-1399
Web site: www.cribmaster.com

**Machine Monitoring Software**

The next-generation Artis CTM V6 is a machine and process monitoring system that helps safeguard and optimize complex production processes thanks to aligned in-process monitoring. The flexible interface concept enables problem-free integration within many environments including Profinet, Ethernet/IP and Modbus. The software enables evaluation and control to be carried out with a range of process-dependent strategies to optimally monitor the process. Each individual parameter can be very finely adjusted and precisely adapted to the process. Process monitoring operates precisely and reliably from the very first cut. In the basic installation, the system is interfaced with the machine control and accepts inputs from various measuring transducers. Data capture is accomplished using a sensorless digital torque adaptor, wherein a selection of drive data is collected by the control for the evaluation of the torque of the spindle and the feed axis. Additional or alternative sensors are available for measuring strain and force, true power, torque, vibration and acceleration, acoustic emission, and standard power or voltage signals.

_Marposs Corp._
Ph: 888-627-7677
E-mail: marposs@us.marposs.com
Web site: www.us.marposs.com

**Enhanced Part Programming**

Updated GB\GeoSolid programming solution features additional support for Integrex I series and Variaxis machines. With the latest version, machinists can simply select the entities for machining and GeoEntry carries the geometry into the Mazatrol program. With GB\GeoSolid, users can link SolidWorks part model files into Mazatrol and dramatically reduce the time required to input part geometry. This helps prevent programming errors by extracting information directly from a

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part design. Mazatrol users enjoy all the part manipulation capabilities of SolidWorks, in addition to the Mazatrol programming features of CamLink. New features in GeoSolid now help automate the creation of WPC shift making it easy to apply Mazatrol programming to any face, and by eliminating tedious calculation, programming times are reduced.

Griffo Brothers Inc.
Ph: 541-758-8421
Web site: www.griffobros.com

CMM Automation
Verisurf Automate is a new software package that makes CMM programming faster and easier. The software takes a revolutionary approach to inspection automation, speeding programming and lowering costs with a 3D CAD measurement platform that automates all types and brands of CMMs with intuitive, graphical object-oriented programming and open standards that increase freedom of choice. Automate users are immediately productive with a rich 3D environment that includes an object-oriented operations manager, CAD feature extraction, and solid-model associativity. Ease of use and user productivity is enhanced with file recognition, logical right-mouse-click options, customizable user configurations and drag-and-drop operations reordering. Attention to the intuitive 3D experience helps users learn quicker, program their CMM faster and automate their CMM operation. The software offers a complete coordinate measurement CAD system with 3D surface and solid modeling, traditional 2D drafting and 3D model associative GD&T. CMM inspection plans created in Automate are compatible with all brands and models of portable CMM Arms, scanners, laser trackers, optical trackers and programmable stationary CMMs.

Verisurf Software Inc.
Ph: 888-713-7201
Web site: www.verisurf.com

Cloud-Based ERP
The Exact Online JobBOSS is a multi-tenant cloud solution that enables manufacturers to gain visibility and control of manufacturing processes, job costs and profitability. Exact Online JobBOSS perfectly suits make-to-order manufacturers and job shops in such diverse sectors as metal fabrication, woodworking, plastic processing, machine building and printing. Featuring 24/7 access through a Web browser to quotes, job status, customer information and business financials, Exact Online JobBOSS will help manufacturers increase on-time delivery, customer satisfaction and loyalty, operational efficiency and profits. The system will be offered through flexible monthly subscriptions. As businesses grow, they can add companies or users and move up to another subscription level or add apps from the app center. Monthly pricing starts at $299 for the first user and $19 for each additional user. System enables quick and easy implementations of ERP software as the the installation, upgrades, security and all the IT infrastructure are automatically provided in the cloud.

Exact Software North America Inc.
Ph: 855-359-9256
E-mail: info@exactonline.com
Web site: www.exactonline.com

CAM Programming
The latest CAMWorks software for CNC programming will be previewed. In today's environment of tightening capacity, manufacturers need to be able to do more with less. CAMWorks 2015 is a one-stop shop for all CNC programming needs with focus on making the entire design to part cycle shorter. CAMWorks 2015 adds enhancements like color-based definition of complex surfaces making it easier to define features, avoiding the traditional chains and profiles methodology. With over a dozen enhancements in this area, CAMWorks 2015 has bolstered its ability to interpret non-prismatic surfaces on solid models as machinable entities automatically. This ability in combination with Intelligent Knowledge Base allows users to eliminate the routine elements in CNC programming and focus on their core expertise. The software's integrated true G-code simulation, CAMWorks Virtual Machine, allows users to make sure that the costly process of dry-runs on the shop floor are minimized with one-click verification.

Geometric Americas Inc.
Ph: 480-367-0132
Web site: www.geometricglobal.com
ERP Software
Company will showcase its Rapid Response Manufacturing software that is geared towards small to mid-sized businesses, manufacturers and job shops with a major focus on the aerospace, defense and medical fields, but is also flexible among a wide array of industries. With its fully integrated ERP, manufacturing execution system (MES) and quality management, the software strives to help improve overall business processes, reduce costs and increase profits. ProfitKey’s full ERP suite will be on display and available for demonstrations throughout the show. The software offers complete order-to-bill management capabilities and it can be configured to meet your organization’s specific needs. The package is easy to install and use, and has tremendous functionality with complementary modules, including a complete financial accounting and reporting system.

ProfitKey International LLC
Ph: 800-331-2754
Web site: www.profitkey.com

CAD/CAM Software
The Cam-Tool Version 10.1 CAD/CAM software can machine a mold or die with minimal to no polishing. Company will demonstrate the update, which includes more simplistic job startup with an expansion of the software’s EZ Launcher that enables users to quickly become more effective using the software. A Corner Rad has been added to the toolpath types to allow smoother corner transition in finishing routines. The software includes more automated preparation of toolpaths and the selection of areas to be machined. For finishing, the update includes an improved method of Protrusion Divide. Other improvements include an add-in to SolidWorks, with the ability to apply 2D and 3D toolpaths directly to the SolidWorks model to minimize hand work and polishing on electrodes, inserts, slide, lifters and core and cavity components. Wire EDM capability also has been improved in the software for users requiring wire EDM.

CGS North America Inc.
Ph: 519-737-6009
E-mail: randy@camtool.com
Web site: www.camtool.com

Factory DNC Solution
FactoryWiz DNC helps significantly reduce operator training time with an architecture designed for ease of use. Building upon past DNC innovations such as full simultaneous communication capability to every machine, comprehensive network support, and powerful remote-request capability from the machine control panel, FactoryWiz DNC brings a host of new capabilities including “Web client” stations that can be deployed on most operating systems with a Web browser. At the same time, mobile device access makes file requests easy and immediate using the smart phone in your pocket. Additionally, customizable notifications use e-mail systems to keep on top of program revisions, and third-party editor support enables making use of the G-Code editor users are already familiar with. The new FactoryWiz DNC includes the same powerful API capabilities of FactoryWiz Monitoring, thus allowing the easiest expansion scenario for upgrading to a fully integrated machine/event monitoring system.

Refresh Your Memory Inc.
Ph: 408-224-9167 or 866-RYM-4DNC
Web site: www.factorywiz.com

Predictive Production Solution
With the PR2 (Predictive Production Management) software, manufacturers get the latest-generation software developed entirely by Pama for the real-time management of manufacturing systems, in both supervised and unsupervised shifts. PR2 is an extensively tested proprietary Pama software system for simplifying and optimizing use of Pama manufacturing cells. The software aims to manage in real-time any scale of workload sustained by a production system, minimizing both high-cost resource redundancy (such as tools, for example) and machine servicing times to maximize spindle cutting time. It completely and automatically manages all part programs, uploading and downloading data to and from the memory, managing any modifications and/or corrections made on the machine. The solution also manages the preparation and assembly of tools in the background, optimizing tool magazine load, and it simulates production in real time, providing a dynamic visualization of machine operating autonomy for the optimization of unsupervised shifts. With the statistics package completing PR2, it is possible to analyze and calculate OEE, tool usage and fault occurrences.

Pama Inc.
Ph: 847-608-6400
Web site: www.pama.us