

# Simulation, verification and optimization for CNC

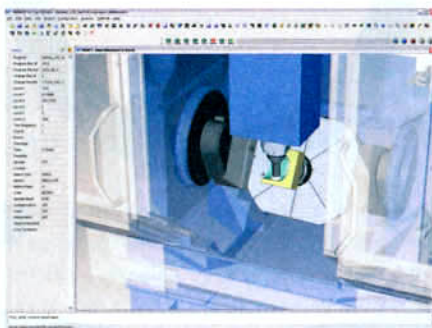
**C**GTech's Vericut, Version 6.1, is CNC machine simulation, verification and optimization software that enables users to eliminate the process of manually proving-out NC programs. It reduces scrap loss and rework. The program also optimizes NC programs in order to both save time and produce quality surface finish. Vericut simulates all types of CNC machine tools, including those from such leading manufacturers as Mazak, Makino, Matsuura, Hermle, DMG, DIXI, Mori Seiki and Chiron. It runs stand-alone, but can also be integrated with CAM systems such as Catia V5, Unigraphics, PTC, MasterCAM and EdgeCAM.

In Vericut 6.1, NC program review is integrated into the main desktop, enabling the user to navigate backwards from the last NC program line simulated. Error messages and NC program text is highlighted when a collision on the stock or fixture is selected. Optionally, material can be replaced while stepping backwards, and then removed again while stepping forward, giving the ability to readily identify problem areas.

Both machine views and profile views are now active in Review mode, including an optional toolpath line display in the profile view. Additionally, synchronized subsystem simulation (such as for Mill-Turn and multi-channel controls) can now be displayed in Review mode.

A new logger display shows messages in a scrolling list. Messages are organized by

category. Each category of message can be blanked or displayed as desired. Selecting an error or warning message in the list highlights the associated NC program line in the NC program display. The logger display is a dockable panel and can be located horizontally within the desktop or outside the desktop. Furthermore, additional Vericut status lights indicate activity during simulation.



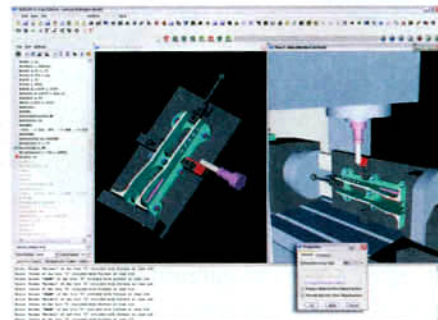
Auto-Diff constant gouge check can optionally check for a minimum amount of excess material relative to the design model. This is typically used where roughing cuts should leave a specific minimum amount of material for subsequent machining. Auto-Diff profile is improved to give more robust results on large and complex profiles where the design and cut stock models are nearly coincident.

Manual data input (MDI) simulation has been enhanced to include axis jog buttons and tool positioning by graphical picks. This can be useful during planning stages. The

MDI controls can be used to make sure the machine will reach all the necessary features of the part. Tool positioning includes offset values along the tool axis and side of the tool.

It may be desirable to "lock-down" Vericut's machine configurations at companies with multiple machines and several NC programmers. Encrypted machine and control files allow the site manager to prevent machine configurations from being inadvertently modified.

Menu features are reorganized so "project-specific" settings used during NC program simulation tasks are clearly separated from "machine/control" configuration settings. Using encrypted machine/control files automatically disables machine/control configuration menus. If desired, the machine/control Configuration menu can be completely removed from Vericut's main menu bar.



Turning tools with multiple inserts (such as "Flash" tools or other types of tools with

multiple inserts) are now supported, including definition of multiple driven points. Each insert's position is checked for valid turning orientation before it will cut. Cutting limit checking (added in 6.0) is enhanced to include checking minimum/maximum rpm values. A new model choice automatically creates a milling tool's gage location at the highest point on the tool assembly.

Vericut's CAD/CAM interfaces make verifying NC programs from within the CAD/CAM/PLM system convenient. Users can verify individual operations, a series of operations or a set of complete NC programs. All stock, fixture, and design geometry is automatically transferred to Vericut in the correct orientation, along with the NC program, tooling, machine and control data and other simulation parameters. The following CAD/CAM/PLM interface updates have been made in 6.1: Unigraphics interface, which merges tools from the UG session with tools in the template project file's tool library; CATV Interface – CATIA V5 users can select how to apply the part operation's machining axis in their Vericut simulation by selecting the offset table (Program Zero, Work Offset, etc) and relationship to the machine (tool, rotary axis pivot, etc). CATV allows the user to select sketch geometry used to define tool shapes in CATIA. This geometry is then used to create tools in Vericut. CATIA length units (inch or millimeter) are now automatically detected and set in the Vericut session.

For more information, Tel: (818) 991-1960; Web: [www.cgtech.com](http://www.cgtech.com).

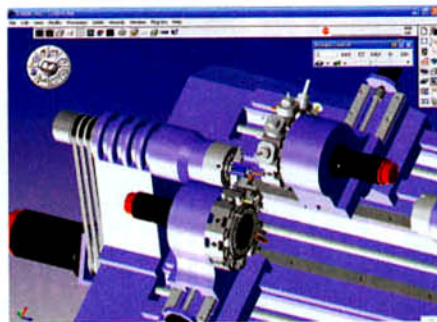
## Machine simulation added to software

The **Gibbs and Associates** GibbsCAM, software for programming CNC machine tools, now offers a machine simulation option. This capability, which complements GibbsCAM Cut Part Rendering process simulation functionality, enables entire machine tool motion of a CNC program to be validated in an accurate simulation.

Multi-task machine tools represent a growing machine tool segment because they provide an ability to fully machine a wide variety of parts entirely within their working space without human intervention. Gibbs and Associates has formed key partnerships with a number of machine tool vendors that are focusing on multi-tasking as part of their strategic market position. They include Index,

Matsuura, Mazak, Mori Seiki and Nakamura Tome.

The updated version of GibbsCAM machine simulation provides support for turning, mill/turn and multi-task machine tools, added to the previous version of the software that supported milling machine tools. Models can be built and set up like the real machine tool; then the CNC program is simulated to validate it prior to running the CNC program on the actual machine tool. This allows potential programming errors to be visually identified before they become expensive mistakes out on the shop floor, but program inefficiencies can also be recognized and addressed.



For more information, Tel: (800) 654-9399; Web: [www.GibbsCAM.com](http://www.GibbsCAM.com)

## Machine utilization and availability software

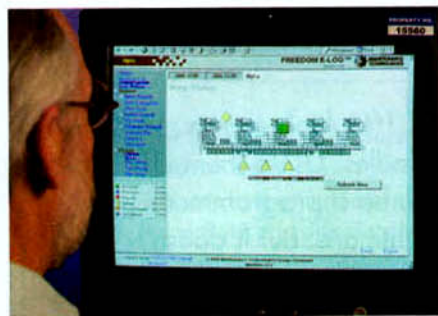
**Maintenance Technologies'** version 2.0 of its Freedom E-LOG production management software is a standards-based logging and on-demand reporting application that gives managers a plant-wide overview of equipment availability and asset utilization. It addresses management's need to communicate and understand machine tool availability and utilization, provides objective data that reveals production patterns and trends, and forms the basis for corrective actions that lead directly to increased productivity and throughput and the lowering of manufacturing costs.

Operators, supervisors, and engineers can use these web-based reports to optimize equipment, programs, and schedules to support their 24/7 operations. All of the reports can be customized to meet specific plant requirements. The software also includes automated reporting and instant email or cell phone notification of critical events.

Freedom E-LOG 2.0 generates a variety of standard reports in intuitive chart and graph

formats that support drill-down mining to reveal detailed information on specific machines and/or production activities. In addition, all data collected can be exported into a standard spreadsheet format to facilitate custom analysis and report generation.

The 2.0 version has been enhanced with the following features: the ability to view all production assets regardless of type or brand in a plant floor layout; native support for reporting in English, French, German, or Spanish; data export in the spreadsheet-friendly .csv format; automated email reports and watchlist notifications; an expanded suite of OPC and digital interfaces to include more machine types and brands; PC and web-based remote connection capability; a centralized, "one-stop-shop" reporting system; compliance with AMT and VDI-3423 standards.



For more information, Tel: (800) 934-0735; Fax: (859) 534-4999; Web: [www.maintech.com](http://www.maintech.com)

## CAD/CAM system's new release

**Surfware Inc.**, developer of Surfcam CAD/CAM Systems, has announced the release of Velocity version 3.0. Highlights include: significantly enhanced 4- and 5-axis milling capabilities for reduced programming time and increased material-removal efficiency for molds, dies, automotive parts, aerospace parts, and turbo machinery; new toolpath containment, with APT-like Tool-To, -On, and -Past options that provide control of toolpath extent over multiple surfaces; Toolpath templates that capture user knowledge and machining preferences to streamline the part-programming process, and significantly augmented API (Application Programming Interface) hooks that make Surfcam more customizable to specific user needs.

For more information, Email: [pr@surfware.com](mailto:pr@surfware.com); Web: [www.surfware.com](http://www.surfware.com)