



## What's NEW in VERICUT 6.1 – 6.1.2

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July 16, 2007

Dear VERICUT® User:

Thank you for your continued investment in VERICUT, an important part of your NC programming and machining process!

The VERICUT 6.1 NC simulation, verification, and optimization technology is packed with new features making it more powerful and easier to use. This letter describes important changes in VERICUT 6.1. Take a moment to review what's new and improved in this release.

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Sincerely,

Bill Hasenjaeger

CGTech Product Marketing

# VERICUT 6.1

## Release Notes

February 5, 2007

Over 140 customer reported problems and 80 customer requested enhancements have been implemented in VERICUT 6.1. The following is a summary of enhancements.

## VERICUT 6.1 Enhancements

### NC Program Review

In VERICUT 6.1 NC program Review uses VERICUT's desktop and graphics, it no longer opens in a separate window. It is combined with the Info NC Program display. An icon button in the Info NC Program window switches modes between the Info display and the Review display. When in Review mode, simulation is disabled and the user can navigate backwards from the last NC program line simulated.

Entering Review mode adds Step Backward and Play Backward buttons to VERICUT's other VCR buttons. The existing Step, Play, Rewind and Reset buttons also change to interact in Review mode.

Both machine views and profile views are now active in Review mode, including an option tool path line display in the profile view.

When stepping, or playing backwards, the machine can also be animated by optionally enabling File > Properties > Animate Machine When Stepping Back. This optional choice uses additional memory to store the machine locations for backwards animation. Only motions simulated after this option is enabled are stored for backwards animation.

Material can also be added back to the cut stock when stepping back, by optionally enabling File > Properties > Replace Material When Stepping Back. This optional choice uses additional memory to store the material for backwards animation. 500 backwards steps are stored. Only material removed after this option is enabled are stored for backwards animation.

Synchronized subsystem simulation (such as for multi-channel controls) can now be displayed in Review mode.

Tool information is displayed below the NC program text when in Review mode.

Error text is highlighted when an error mark on the stock or fixture (usually red color) is selected in a workpiece view while in Review mode.

## **AUTO-DIFF**

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 detect very small differences and avoid reporting "false errors" associated with the design and cut stock profiles being nearly coincident.

## **Protecting Machine and Control Configurations**

Encrypted machine and control files may be optionally created and used. The encrypted files cannot be modified. Menu features are reorganized so "project-specific" settings, and "machine/control-specific" settings are clearly separated. When using encrypted machine/control files the machine/control menus are disabled.

An environment variable, `CGTECH_MACHINE_CONFIG`, can be set to `FALSE` to completely remove the machine/control Configuration menu from VERICUT's main menu bar.

## **MDI Dialogue**

MDI is significantly enhanced to include axis jog buttons and tool positioning by graphical picks.

## **CAD/CAM Interfaces**

The Unigraphics interface merges tools from the UG session with tools in the template project file's Tool Library.

CATV allows users to choose 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 (in CUT and NO CUT sketch profiles). The geometry is used to create tools in VERICUT.

CATIA length units (inch or millimeter) is now automatically detected and set in the VERICUT session.

## **Tools**

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, and must lie in a valid turning plane before it will cut.

Cutting limit checking (added in 6.0) is enhanced to include checking Minimum/Maximum RPM values.

A new Tool Manger menu, View > Allocate Width to Columns, fits tool columns to the window layout.

A new modal choice automatically creates a milling tool's gage location at the highest point on the tool assembly. Tool Manager menu Edit > Automatic Gage Offset Z is a toggle button. The button state is stored in the user's prefs file. When on, the gage offset Z is automatically positioned to the highest point of the tool assembly whenever a tool component is modified. Only the Z value is modified, preserving the existing XY. This feature only applies to milling tools.

## **Status Lights**

More VERICUT status lights are added to indicate activity during simulation.

The Busy light stays on when VERICUT is loading models.

## **Siemens 840D VNCK**

The Siemens 840D VNCK uses a new VERICUT simulation API. The simulation API allows an external program to control the VERICUT simulation.

VERICUT uses VNCK version 1.5.

VERICUT uses the VNCK's ISV licensing model.

## **Error Message Display**

A new logger display now shows messages in a scrolling list. Messages are organized by category: Information, Warning, Error. Each category of message can be blanked or displayed via right-mouse menu or View > Logger View Options. 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.

Logger and log file messages are more consistent.

Duplicate messages for one NC program record are eliminated (such as collision errors reported twice during a Drilling Cycle).

The logger now behaves correctly with Step and Play.

The logger correctly displays "End of file".

Collision messages indicate whether a HOLDER or SHANK collides.

## **Mouse Button and View Dynamics**

Mouse dynamic view is modified to work "one-handed" as follows:

- Left button – Rotate
- Middle button – Zoom to box
- Right button - Pan
- Mouse wheel – Zoom in/out

The original mouse button controls still work:

- Shift + left button – Pan
- Control + left button – Zoom in/out
- Control + shift + left button – Rotate

## **Miscellaneous Enhancements**

The memory available to VERICUT's display and GUI (via Java runtime parameters Xmx, Xms, and Xss) is increased for improved stability.

Info > G-Code Report and Control Report now open the report in a text editor without forcing the user to save a file.

Floor/Wall texture files are configurable in the View Attributes dialogue under a new OpenGL Settings tab. Initial texture files are shown if the environment variables are set.

The Status window now displays axis positions with 8 decimal place accuracy. Trailing zeros are suppressed.

The File > Merge menu in Tool Manager combines a "Master" tool library file with another tool library file, creating a 3<sup>rd</sup> "Merged" tool library file. Options are available for the disposition of duplicate tool ID's.

Added support for Sinumerik 840D DEFINE AS variable substitution.

The VERICUT main window stays behind the image playback windows. Behavior of the status window with playback is also improved.

Project Tree text color highlighting is enhanced.

The user can now specify the number of Recent Files to display and can clear the list.

Cutting graphs only displays subsystems that are being synchronized. Display of "auxiliary" subsystems, such as tool changers, pallet changers, etc, are not displayed.

Probing now works correctly with rotation planes active.

Project > Setup Models > Define now displays only components and models of the current setup.

A new environment variable CGTECH\_VIEWER is added to specify the editor to be used when viewing any text files.

Added a new Translucent choice to component Mixed Mode visibility in the modeling dialogue. Translucency is only valid for Accelerated views set to Mixed display mode. The View > Attributes > OpenGL settings has a Translucency slider to control the objects translucency.

A Model Auto Block button is added to the Model Definition > Model tab. When pressed the button calculates a block enveloping the models of the first Design component in the tree. The offset value is applied. The former Auto Block button is renamed to Path Auto Block to indicate the block size created by this button is based on the NC Program file.

Added an icon to the tool bar to enable the No Animation option from Project > Processing Options > Motion.

A new Autosave file naming scheme is implemented in order to create unique file names. Files created by Autosave are now named as follows:

Filename#S#F#Tid.ext

**Filename** is the name specified in the Autosave dialogue

**#** is a unique sequential file counter, start with 1, reset to 1 on VERICUT reset

**S#** is setup index number

**F#** is the toolpath file index number

**Tid** is the tool id, omitted if not using a tool library

**.ext** is the default file extension of ps, eps, tif, jpg, etc. depending on the file being saved and if not specified in Filename

AVI record/playback now records a Profile view.

The Mold & Die product license is retired.

The Advanced Machine Features license is retired. All features formerly under this license are now available with the Verification base license.

The number of facet normals fixed by Polyfix is now displayed in the polyfix log file.

The Collision Table contents are now divided between the machine file and project file's setup depending on the component pairs.

VERICUT optional and debug environment variables are now included as comments in VERICUT run scripts.

## Corrections

Some sites have been experiencing "random" unexpected VERICUT termination. A "random" unexpected VERICUT termination is defined as one that is not repeatable and cannot be duplicated. Significant effort has been made to identify, and eliminate, possible sources of these random terminations and thereby improving the stability of VERICUT.

NC Program Review display inconsistencies, seen during multiple Step Forward/Step Backward picks, are fixed.

Coordinate system preview symbol display inconsistencies are corrected.

Tool display error in the workpiece view associated with tool orientation rotation, rotary axis motion and spindle on command is fixed.

Cuttercomp now works correctly with polar motion.

Circular motion while in cylindrical interpolation mode is fixed.

Helical motion after Z axis motion while cutter compensation is active now works correctly.

Milling tool wizard correctly places inserts when helix angle is zero.

Status window now show the correct IPM when FeedPerMinuteType is set and cutter compensation is active.

VERICUT processes correctly with multiple insert/cutter tool.

VERICUT correctly executes OptiPath Learn mode when the process tree is open.

VERICUT correctly continues processing after pressing OK in Model Export's Preview and Combine dialogue.

A problem in VERICUT's motion break-up logic associated with the speed slider is fixed.

NC Toolpaths are now displayed in CATV's files selection box in alpha order, rather than the previous random order received from CATIA.

CATV opens VERICUT with the updated setup template tool library created during previous runs when the user selects "Use tool library referenced by setup template".

It is now possible to use a VERICUT sweep file as an Insert Cutter for turning.

Inspection correctly maintains a feature's position when the view is rotated and the feature location is refreshed.

Duplicate R values are no longer output in the optimised NC program file when Optimise Circles is turned on.

CycleMillPocketCutType with override value of 2 or 4 is now working correctly when stepover is zero.

Tree display modified, and highlight color is added, for better character clarity.

Motion > Tool Spindle Always On option no longer requires the user to press Reset to activate.

Improvements to memory allocation allow larger VCT model to work correctly as fixtures.

The Mastercam interface now correctly transfers NC program information to VERICUT when operations are in sub groups.

STL Normals set to Computed in model definition is now correctly saved in the machine file.

Motion > Tool Spindle Always On option works for all NC program files being processed.

Fanuc G71 Rough Turn cycle emulation now correctly determines turning (OD) vs. boring (ID) based on the relative positions of the starting and ending X values.

VERICUT now correctly sets the spindle speed based on the active spindle when in units-per-revolution feed mode, and running a sync job. This corrects the time and the display in the Tool Use graph.

The EdgeCAM interface has been updated to version 10.75. A problem in the menu is caused by EdgeCAM and will be fixed in version 11.00. A new VERICUT menu has been added to work around this problem.

VERICUT correctly removes material, including during circular motion, with a complex turning insert consisting of multiple concavities.

Mixing cutter and holder components in a tool list (cutter A and holder B) is improved. However this practice is not recommended since the desired tool assembly in the machine view cannot always be determined. Correctly configuring the tools in Tool Manager is the recommended method.

Two heads processing a G28 ReferencePointIndex motion simultaneously during sync motion now works correctly.

CATV now correctly writes higher-order ASCII characters to the VERICUT project file, allowing labels to include these characters (such as ü).

The default action for an NC program in VERICUT's project tree is now a text editor. This causes a double-click on the NC program file name to open the file in a text editor.

A problem causing incorrect emulation of Heidenhain iTNC 530 pocket cycle def 4 under specific conditions is now fixed.

A geometry inconsistency problem in DXF tool profile causing the resulting tool in VERICUT to not remove material has been fixed.

A problem with milling tool inserts that intersect the tool centerline causing incorrect measurements in X-Caliper has been fixed.

WorkingPlane2ABC works correctly with Local Rotation Plane (ref. Sinumerik 840D CYCLE800).

Cutting Graphs now work correctly for tools loaded in two subsystems.

An editing problem in NC Program Review is corrected by reorganization of the NC Program Review feature.

RestoreSubsystemID now correctly restores the subsystem when used with After Motion during a sync job.

A specific material removal problem affected by the simulation speed slider has been corrected.

Fanuc G76 Thread Cycle now works correctly during sync motion.

Fanuc G71 Rough Turn Cycle now works correctly when no motion is on the last sequence.

CATV allows the user to specify the G-Code Settings table name to use for program zero. The choices can be translated to the local language.

Groove insert geometry adjusted to support the condition where the cutting width equals the overall width.

VERICUT correctly processes a complex turning tool shape with multiple concavities.

Importing a setup now uses the same “find file” logic as when opening the project containing the setup.

Reports with automatically saved images of tools now work correctly when the control uses or NC program uses tool change subroutines.

Problems previously reported with NC Program Review and dynamic view modes are corrected by the NC Program Review enhancements.

Tolerance values in initm.Vcproject are corrected to millimeter values. This change improves File > New Project > Millimeter, and the behavior with CAD/CAM interfaces in millimeter mode.

Problems with the right mouse menu in the Tool Manager when dynamic controls are set to CATIA are corrected by the new implementation of mouse buttons and view dynamics.

A problem where processing with the VNCK incorrectly indicates "end of file" has been corrected by ignoring program stop and end events unless they are part of a VNCRUN() request.

Pressing Apply during Mate/Align now keeps any constraints previously set.

Zoom to Box icon and action is unavailable when in OpenGL display mode.

Sentinel license administrator WlmAdmin now works correctly for License Server Only installs.

NC Program Review incorrect display of circular motion, under specific conditions, is corrected.

A problem where Mate/Align fails on the cut stock model has been corrected.

The g-code log file now contains the output results for all NC programs processed for a given setup.

VERICUT prompts to save the project file after changing Status or Graph window settings. Note that which values to graph, and their maximums, are saved in the user preferences.

Sporadic "unable to bind" errors have been eliminated by the use of Java runtime 1.5.

Using SyncValue after setting an offset before motion no longer causes incorrect motion.

Heidenhain cycle 14 / 20 / 22 errors are now correctly written to log file.

Tool Manager middle mouse pick for gage offset location works correctly when dynamic controls = CATIA

Now that NC Program Review is in VERICUT's main desktop, the X-Caliper window no longer goes behind the window when active.

A problem causing bad circular motion in the workpiece view with a virtual-Y axis has been corrected.

APT FEDRAT/MMPM now correctly output in the optimized NC program file/

A problem associated with processing Heidenhain iTNC 530 loop count with variables, similar to the form L10.Q10, has been fixed.

VERICUT now correctly processes APT SFM spindle command and IPR/MMPR feed rates and produces correct cycle times and feed rates for an APT turning.

Added a new DST Ecospeed machine using a virtual C-on-B-on-A head configuration. Was previously C-on-A-on-B.

Activating OptiPath from a custom interface now correctly produces an optimized NC program file.

VERICUT File Selection Boxes now open with My Network Places contracted if more than 16 entries in order to improve speed.

Corrected grinding material removal for special case.

New macros added to enhance the current support of system variables: BiDirVarsModeOnOff, BiDirVarsApplyOnOff, BiDirVarsAbsIncr.

Display problems related to using VERICUT solid files from earlier versions have been corrected.

Improved material removal display on grinder spiral/helical motion.

The Tool Summary table in the log file now automatically widens based on the longest string in the list.

VERICUT no longer incorrectly prompts to save the machine when nothing has changed.

VERICUT image file enhanced to correctly handle various types of view layouts in VERICUT's main desktop.

Animation Speed slider now correctly affects turning motions.

## **Training Sessions**

All training sessions are updated for V6.1 and include separate sections for Verification and for Machine and Control Configuration.

## **VERICUT Help**

VERICUT Online Help is PDF file based for V6.1.

## **New Macros / Conditionals in V6.1**

42 new macros are added for V6.1.

**BiDirVarsAbsIncr**

**BiDirVarsApplyOnOff**

**BiDirVarsModeOnOff**

**CycleMillCenterAbscissa**

**CycleMillCenterOrdinate**

**CycleMillThread**

**CycleMillThreadDir**

**CycleMillThreadFeed**

**CycleMillThreadID**

**CycleMillThreadOD**

**CycleMillThreadPitch**

**CycleMillThreadToolTeeth**

**CycleTurnAdjustEndPoint**

**EI\_RetractRadius**

**IJKVector**

**IJKVector2**

**SetMaxMotionDistance**

**SiemensCornerValue840D**

**TapeCacheCheck**

**TapeCachePoint**

**TapeCacheTows**

**TapeDensity**

**TapeHead**

**TapeHeadService**

**TapeInitialLength**

**TapeLayer**

**TapePath**

**TapePly**

**TapeReloadAllTows**

**TapeReloadTow**

**TapeThickness**

**TapeTotalTows**

**TapeTowOff**

**TapeTowOn**

**TapeTows**

**TapeTowSwitches**

**TapeTowWidth**

**TriceptDriveCenterpost**

**TripodArmLength**

**TripodRodLength**

**TurnOnOffCompTravelLimits**

**TurnOnOffSubsystemTravelLimits**

**WorkingPlane2AbcSolution**

# VERICUT 6.1.1 Interim Release

## Release Notes

May 2, 2007

VERICUT Version 6.1.1 contains everything described above for V6.1, plus these additional fixes/enhancements.

### **AUTO-DIFF**

Compare, Restore, and Report buttons in the AUTO-DIFF window now update correctly when the Stock Component field is changed.

### **CATIA V5-to-VERICUT Interface**

Models no longer disappear from CATV5 created projects, when OpenGL is turned on.

A problem causing CATV5 to incorrectly orient turning tools rotated 180 degrees about X is fixed.

CATV5 is enhanced to look for the information that may have been established for CATIA's own "tool path replay" when a CATProcess file has not been handled by CATV before, and thus does not have the CGTech attributes that provide the names of the selected design/stock/fixture models.

### **EdgeCAM-to-VERICUT Interface**

The EdgeCAM 11 to VERICUT Interface created Tool Library ID's now match those in EdgeCAM.

The EdgeCAM 11 to VERICUT Interface no longer outputs false errors and correctly starts VERICUT.

The EdgeCAM to VERICUT Interface has been updated to refer to VcProject files instead of User files.

The EdgeCAM 11 to VERICUT Interface now correctly applies the same offset to NC Zero as it does to the models.

## **GibbsCAM-to-VERICUT Interface**

A GibbsCAM to VERICUT interface is added to VERICUT's suite of CAM Interface modules.

## **Machine Simulation**

A condition causing slow VERICUT processing when using certain round insert cutters is corrected.

A problem causing no material removal in the Machine/Cut Stock view for a specific turning setup is fixed.

A problem preventing material removal and tool display in Work Piece view for a specific setup is fixed.

The VERICUT session no longer "hangs" while processing a specific Probe profile.

A number of problems related to refreshing the Project Tree, and the NC Program window, when transitioning between setups are corrected.

Edits made to machine and control files are now saved correctly.

Spindle direction errors are now correctly reported for a specific sub-spindle configuration.

MDI now works correctly for situations when there are no stock or fixture models specified and Cutting Tolerance is set to Tool Size.

A condition causing slow VERICUT processing when the Graphs window is displayed is corrected.

A problem causing unexpected VERICUT termination, under certain conditions, when changing to NC Program Review mode is fixed.

## **MasterCAM-to-VERICUT Interface**

The MasterCAM to VERICUT Interface is enhanced to support MasterCAM X2 resolving the following issues:

- Using either the Apply, or OK, buttons in the MasterCAM to VERICUT Interface no longer causes MasterCAM X2 to encounter a problem causing unexpected termination when using MasterCAM X2 with the MasterCAM to VERICUT Interface.
- Certain MasterCAM X files no longer cause unexpected MasterCAM X2 termination when using MasterCAM X2 with the MasterCAM to VERICUT Interface.
- Correct stock color to be passed to VERICUT when using MasterCAM X2 with the MasterCAM to VERICUT Interface.

The MasterCAM to VERICUT Interface is enhanced to correctly pass tool information to VERICUT for situations where the MasterCAM file contains multiple Machine Groups, that use the same tool number, for different tools, used on different machines.

## **OptiPath**

The OP Graph time is now correct for situations where a subroutine is called multiple times. OptiPath has been modified to improve simulation behavior when using Prompt While Cutting with the Search OptiPath record window.

## **Pro/E-to-VERICUT Interface**

The Pro/E to VERICUT interface no longer creates an unused second stock component that resulted in no material removal during simulation.

## **Unigraphics-to-VERICUT Interface**

Parametric Tool calculations that include a draft angle, passed through the Unigraphics to VERICUT Interface now output correct diameter changes.

The Unigraphics to VERICUT interface now includes XML escape characters for special characters when creating VCTMP files.

The Unigraphics to VERICUT Interface is enhanced to allow the "~" character as part of a tool name.

The Unigraphics to VERICUT Interface is enhanced to enable creating a CSYS relative to another CSYS, for the purpose of moving the cut stock from one position to the next.

The OptiPath Description in tool library files generated by the Unigraphics to VERICUT Interface are now written in the correct format.

## **Verification**

The NC Program window now re-opens after closing it via clicking the red "X" box (upper right corner of the window) while VERICUT is running.

Re-opening a .mch file, after saving it as an encrypted file, no longer outputs false errors that models cannot be found.

Changing "Dynamic Rotation" features while in OpenGL mode now works correctly.

The "Zoom" function now works correctly when View > Dynamic Controls is set to Unigraphics.

In the Project Tree, files can now be pasted to an NC Subroutines branch.

The Workpiece View display no longer "flickers" when you start/stop dragging the mouse when using "Dynamic Rotation" features while in OpenGL mode.

VERICUT now simulates the toolpath correctly when rotating about C axis only (small increment only) after helical milling.

Using a spaceball rotation in a Workpiece View, while in OpenGL mode no longer causes excessive screen "flashing".

A problem causing incorrect concatenation of alpha-numeric, and numeric, variables is fixed.

The VERICUT session no longer "hangs" while stepping through a specific subroutine with the Variables window and the Machine Offsets window open.

Invalid "Cutter Compensation produced negative radius" errors, due to rounding differences in VERICUT, are no longer reported.

Random unexpected VERICUT termination no longer occurs when loading a specific project file.

The MDI feature, Orient Tool Axis now works correctly with 4-axis machines.

Individual NC programs, in multiple NC program setups, now process correctly when the other NC programs are designated as inactive.

When using a tool list to add holder to a cutter defined in APT, the holder is now stacked on the cutter as it was in pre-V6 VERICUT.

Single stepping through a multiple NC program setup now transitions correctly from one NC program to the next.

NC Program Review is enhanced to display the design in a Profile View, along with the Stock, Tool, and tool path line trace.

Reset Cut Color no longer changes the original colors of the VERICUT Solid (.vct) model in a refined Workpiece View.

VERICUT now prompts you when tool libraries are not found.

A problem causing false "Collision between Cutter of the tool....." errors for all except the initial NC program, in multiple NC program setups, when "Tool Spindle Always On" is toggled on is fixed.

VERICUT reports, in PDF format, now generate when a setup is designated as inactive.

A problem causing intermittent unusual behavior when using the dynamic rotate/pan/zoom mouse controls when View > Dynamic Controls is set to VERICUT is fixed.

The Override Format feature, in the Add/Modify Word/Address window, is now ignored if the input text is not all numeric.

The mouse thumbwheel now becomes inactive when any other mouse button is pushed during a simulation.

Cutter compensation is no longer ignored on the first block after it is invoked when using an inserted milling tool.

A problem preventing using the Modeling window to move a stock/fixture/design model using a pick on a machine model, while the Project Tree is open, is fixed.

False holder/workpiece collision errors, for situations where the tool axis is very close, but not quite aligned with, a major axis, are no longer reported.

Unexpected VERICUT termination no longer occurs when using a Magellan serial SpaceMouse.

Turning holder/stock collision error reporting is now more consistent when a Near Miss Value is in effect.

The NC Program window can now be re-displayed after it was closed using the red "close" button in the top right corner of the window.

When a CSYS is renamed in the Project Tree, the original name is now cleared from the graphics display before the new name gets displayed.

Components no longer fail to display red when a collision occurs when both the Driven Point axis is displayed and OpenGL is turned on in a Machine View.

A bad cutter display, and incorrect material removal, for a specific project file is corrected.

The IP file name buffer is cleared when opening a VcProject file unless the VcProject file being opened has an IP filename saved inside it.

Material removal is now correct for a specific lathe parting operation.

Stock no longer gets blanked when a turning spindle spins when the Model Tolerance in the project file is set to zero.

OpenGL texture files on the "Copy Files" window are now defaulted so that their check boxes are "unchecked".

"Active" model indicators are now consistent between the Project Tree, Modeling window, and the graphics area are now consistent.

Unexpected VERICUT termination no longer occurs when using a SpaceTraveler spaceball after rotating, then picking a point on the model in a Workpiece View when selecting From and To points on the Modeling window, Position tab.

Unexpected VERICUT termination no longer occurs when using a SpaceTraveler spaceball when rotating in a Workpiece View with OpenGL active.

VERICUT is enhanced so that you can now both, specify an Override Value, and use the Override Format feature, in the Word/Address window.

Conflicting results between a profile view, and an equivalent section view, for a specific part no longer occur.

Material removal in a Workpiece View, and in a Profile View, when cutting a specific arc is now consistent.

The inability to re-size the VERICUT Logger window under certain docking conditions is fixed.

Material removal in the Workpiece View, and the Machine Cut/Stock View, when cutting a specific arc is now consistent.

Incorrect material removal for a specific inserted face mill is corrected.

Material removal for a specific lathe parting operation is now consistent in the Workpiece, Profile, and Machine/Cut Stock views.

Time calculation is now correct for a specific surface milling operation where the target value for x is negative, and spindle is in CSS mode

## **Miscellaneous**

A new macro, SaveIP, is added to enable saving a VERICUT In-Process (IP) file.

A new macro, SaveImage, is added to enable saving an image (View Capture) file.

A new macro, SaveVcSolid, is added to enable saving a VERICUT Solid file.

Use of the variables E52nnn to create, or modify, the tool cutter compensation on a NUM control now creates the Tool Cutter Compensation table entries correctly.

Macro, SetDynamicVars, CurToolDiam option is enhanced to work with turning inserts.

A new macro, RenameStocksToDesign, is added to enable automatic renaming of a stock component based on the Override Text string plus the name of the first child design component of that stock component.

VERICUT is enhanced to support cycles specified using absolute values for depth.

PolarXValue, PolarYValue, and PolarZValue macros are enhanced to check if cycles are active, and if so, set the cycle depth (as appropriate based on the motion plane).

The Siemens840D Repeat logic is corrected to search backwards first, and then forwards.

Reset Cut Color now works correctly for Machine/Cut Stock views when OpenGL is active.

Macro, SetDynamicVars is enhanced to include a new option, CurToolCornerRadius. This feature will get the minimum radius defined for the current tool. This means:

- The corner radius for a bull end mill.
- The ball radius for a ball end mill.
- The corner radius for an insert.
- The tool radius for a drill.
- The tool radius for a drill.
- The minimum radius for a profile with multiple radii.

Macro, OptiPathOptimizeSubs, using Override Value=5 is modified to better handle processing subroutine calls that are multiple levels deep into a subroutine, when some of them are job subroutines, and others are control subroutines.

Library controls fad88.ctl and fad88a.ctl have been modified to recognize the words CLOSE, DOOR, and OPEN.

"\$" character is now supported for conditional ranges.

The "Units" value is now correct in Tool Manager after using Import > DXF Tool for millimeter tools.

Using Replace One in the NC Program Editor no longer results in an "ArrayIndexOutOfBoundsException" error.

When selecting the 'vcp=<file>' in the Batch Wizard and you select the Project File to be used, the filter is now correctly set to '\*.VcProject'.

Batch Wizard now processes the OS Commands COPY, DELETE, RENAME, and APPEND correctly when there is a 'space' in the path or the filename.

Batch Wizard now processes the OS Command RENAME correctly when the path is included in the "To" field.

Macro, SetDynamicVars is enhanced to include a new option, CurToolRadius to enable setting the specified variable number to the current tool radius value.

The Siemens840DSubroutineSequence macro is enhanced to mark the \_MPF program as the start of the main program.

File Selection Box size, location, split-pane position, and table column widths are now saved in (and restored from) the preferences file.

VERICUT now prompts you when tool libraries are not found.

The default insert thickness used for display purposes when the insert thickness is defined as zero is now 3mm, or 0.125 inch, depending on tool unit.

A problem causing an incorrect tool thumbnail to be created in a VERICUT report, for a specific tool defined in an APT NC program, is fixed.

The *Using VERICUT* section is back in the CGTech Help Library.

The *Sample-Demo Files* section is back in the CGTech Help Library.

Many documentation updates have been added since V6.1.

## **New Macros in V6.1.1**

**RenameStocksToDesign**  
**SaveImage**  
**SaveIP**  
**SaveVcSolid**

# **VERICUT 6.1.2 Interim Release**

## **Release Notes**

July 17, 2007

VERICUT Version 6.1.2 contains everything described above for V6.1.1, plus these additional fixes/enhancements.

VERICUT Version 6.1.2 is available on all supported hardware platforms (Windows (XP, XP64 and Win2000), Sun/Solaris, HP/HPUX, and IBM RS6000/AIX).

### **NOTES:**

1. UNIX Requirements:

Sun/Solaris 10 (8 or 9 is ok too), JRE 5.0  
HP/HPUX 11.11, JRE 5.0  
RS/AIX 5.2, JRE 5.0

2. If you cannot successfully run the 64bit VERICUT 6.1.2 on Windows XP64:

You need to install the Microsoft 64 bit C++ run time environment (vcredist\_x64.exe). This is not distributed automatically by Microsoft.

Administrator privileges are required to install this.

You do not need this if you have Microsoft Visual Studio C++ 2005 installed (not likely for most VERICUT users).

This file will be distributed on the VERICUT 6.1.2 CD.

Although the filename is the same as the one that was needed for the earlier 6.0.x versions, it is not the same file. The earlier 6.0.x versions of vcredist\_x64.exe will not work with 6.1.2.

3. If you cannot successfully run the MasterCAM-to-VERICUT Interface with MasterCAM X2 on Windows XP:

You need to install the Microsoft 32 bit C++ run time environment (vcredist\_x86.exe). This is not distributed automatically by Microsoft.

Administrator privileges are required to install this.

You do not need this if you have Microsoft Visual Studio C++ 2005 installed (not likely for most VERICUT users).

This file will be distributed on the VERICUT 6.1.2 CD.

## **AUTO-DIFF**

Unexpected VERICUT termination no longer occurs when using Refine Display after doing an AUTO-DIFF surface compare for a specific project file.

## **CATIA V5-to-VERICUT Interface**

A problem causing a specific tool assembly to be incorrectly rotated 180 degrees when using the 'Custom Tools' option in the CATIA V5-to-VERICUT Interface is fixed.

## **Machine Simulation**

VERICUT no longer stops processing during a G271 turning cycle.

A problem causing incorrect material removal under certain conditions while processing circle records is fixed.

In-Process files created with OpenGL turned on now open correctly when loaded more than once.

The Selected Model/Component setting in the Modeling window is now correctly set to Model, corresponding to the model highlighted in the Component Tree, after it is added.

## **MasterCAM-to-VERICUT Interface**

The MasterCam-to-VERICUT Interface license is now released correctly after closing the MasterCam-to-VERICUT Interface window.

## **OptiPath**

Unexpected VERICUT termination no longer occurs when optimizing an MCALL CYCLE83 statement.

Helical moves now optimize correctly for G-Code NC programs.

Unexpected VERICUT termination no longer occurs when using long /path/filenames in the Tool Learn Library field on the OptiPath Control window: Learn Mode Options tab.

OptiPath Learn Mode is enhanced to break up motions exactly the same way that OptiPath does during optimization.

OptiPath processing no longer stops when an APT SPINDL/OFF statement is encountered.

The Compare NC Programs window now correctly displays, and compares, NC programs containing APT SPINDL statements.

A problem causing OptiPath to create incorrect output blocks for un-optimized tools for a specific project file is fixed.

## **Tool Manager**

The Location Aids feature now correctly re-positions the insert, for inserted milling tools, before selecting Modify.

The Milling Tool Wizard no longer modifies Extension and Holder IDs when New or Close is selected.

Calculate Minimum Cutter Extension is modified to correctly handle tapered profile tools.

The original tool file is no longer modified when it is used in subsequent setups, modified and saved under a different name.

## **Unigraphics-to-VERICUT Interface**

The original Stock, or Design, model no longer remains highlighted after the Stock, or Design, model has been reselected.

## **Verification**

A problem causing sporadic false errors for specific machine configurations is fixed.

Unexpected VERICUT termination no longer occurs after adding a setup to a project file containing a specific, extremely large G-Code file.

A problem causing incorrect material removal for a specific, hollow center, profile tool is fixed.

VERICUT's Spatial libraries for CAD Model Interfaces are updated to R17.

Motion is now correctly generated for Okuma turn Cycle G85 for situations where the start point is lower than the end point.

A problem causing VERICUT to execute a previously used Cutter Compensation command when Cutter Compensation is turned on, after the previous Cutter Compensation Off was on the same line as the motion command, and the current motion is in a different plane than the prior motion, is fixed.

A problem causing a specific In-Process file to start VERICUT processing at the wrong place is fixed.

A problem causing VERICUT to output the message, "Cycle expansion error - contact CGTech" when processing a turning cycle on a Macturn 250, dual channel machine with Okuma control is fixed.

An inserted tool no longer becomes corrupted, after moving the Cut Stock, for a specific project file.

A problem preventing the VERICUT Logger window from being resized, when the NC Program window is docked in a specific position, is fixed.

Material removal with a turning tool when the Stock is not spinning (to simulate a broaching operation) is now correct.

A problem causing incorrect material, when using a specific hollow, inserted face mill during circular motion is fixed.

Material is now removed correctly when the MDI window, Cut Stock option is active and the Machine Motion Jog feature is used.

Unexpected VERICUT termination no longer occurs for a specific project file when the File > Save Cut Stock > STL feature is used.

Graphic display is now consistent in all view types for a specific turning project file.

APT NC program files listed in the Project > NC Program window are no longer skipped during single step processing.

False "NC Program not Specified" errors are no longer output, when single stepping between setups.

A problem causing incorrect rotation, for a specific boring bar, when executing an M3 command is fixed.

A problem resulting in incorrect material removal, for a specific DXF profile drilling tool is fixed.

Adding a Fixture model to a Fixture component no longer incorrectly causes the Design component to become highlighted when both the Project Tree and the Component Tree are displayed.

A problem causing the NC Program window to open collapsed, showing only a portion of the window header, is fixed.

The VERICUT session no longer "hangs" when a specific inserted milling tool is used in a subsequent setup after moving the Cut Stock.

VERICUT no longer loses track of a selected model which remains highlighted in the Project Tree, after closing the Modeling window.

A problem causing a corrupt IP file to be created for a specific project file is fixed.

The axis value now updates correctly, to reflect the current axis position, when switching from one subsystem to another in the MDI window.

Subroutines are now correctly included when saving an encrypted control file.

Unexpected VERICUT termination, or "hung" sessions, no longer occurs when you try to clear the VERICUT message area (logger) during simulation.

The VERICUT session no longer "hangs" when processing a specific turning project file.

A problem causing the Cut Stock to disappear, when processing a specific IP file created from a CL file based project file, is fixed.

A problem causing VERICUT to miss a holder collision with the Cut Stock, for a specific tool assembly, is fixed

VERICUT is enhanced so that when Minimum Error Volume is set to zero, VERICUT unconditionally reports ALL fast feed and holder collision errors it finds, no matter how small the collision volume.

A problem causing a time delay when opening the MDI window from a "Customizer" user interface is fixed.

A problem causing VERICUT to miss a holder collision and report some false collisions for a specific project file is fixed.

A problem causing incorrect motion and material removal for a specific turning project file is fixed.

A problem causing the Design component to be incorrectly positioned after a reset for a specific project file is fixed.

The VERICUT session no longer "hangs", for situations where the End Sequence number of the previous turning cycle is the same as the current sequence number when a new turning cycle is turned on.

The Section glyph no longer remains displayed after the Section window is closed.

Unexpected VERICUT termination no longer occurs when analyzing a surface using X-Caliper Feature History, or attempting to define a coordinate system using the center of a drilled hole, with a specific VERICUT Solid model.

VERICUT is enhanced to allow all European accented characters (ä, ö, ü, ß, etc.) to be used for APT simulation.

## **Miscellaneous**

Macros CycleTurnAllowanceX, and CycleTurnAllowanceZ, now correctly interpret signed (+ or -) input values.

The Override Text field on the Word/Address Add/Modify window is enhanced to allow the incoming text string, and text variables, to be passed as part of an expression.

The "NumCondEqualWord" conditional function is enhanced such that if the Equal Word comes after the string "G79" or if the Equal Word comes after the string "IF" and before the word "THEN", then this function returns the type EQ. Otherwise, this function returns the type ASSIGNMENT.

The "NumCondDollarSignWord" conditional function is enhanced such that if the Dollar Sign Word comes after a "=", and the previous non-space character is a '+', '-', '\*', '/', '=', '<', '>', or a '[', then this function returns the type FUNCTION, and sets the word to NUM\_INPUT. Otherwise this function returns the type CONSOLE\_MSG.

The Heid\_CallLbl macro is modified to be dependent on condition of the IF flag set using the "If" macros.

A new Type, "5" is added to the WorkingPlane2AbcType macro to support the special double 45 BC nutator found on DMG DMU 50 eVo Linear machines.

A new macro, HeidMPlusIfCheck, is added to support the Heidenhain MillPlus G29 command.

A new Ijk2AbcType, 25, is added to support a BA machine with a nutator.

A new Word VAR type of "Special" and sub-type "NUM VAR Define" is added to support or NUM words VAR (beginning definition of variables) and ENDV (end definition). When this word is found, a special parser is used to process the remainder of the statement up to the closing word ENDV. This includes the creation and initialization of the numerical variables, and the creation of the corresponding words (of type "Special" and sub-type "Variable Name"). Word ENDV is part of the NUM VAR Command but it doesn't have to be specified in Word Format table.

A problem causing inverse motion when Cutter Compensation is used with G71 turning cycles is fixed.

A problem causing all rapid motions when Cutter Compensation is set to 1.6 and is used with G71 turning cycles is fixed.

VERICUT Limited now runs correctly when using APT NC program file with a template file.

Many documentation updates have been added since V6.1.1.

The VERICUT Macros section of the CGTech Help Library has a new format and many of the macro descriptions are enhanced.

## **New Macros in V6.1.2**

**HeidMPlusIfCheck**

**VirtualZAxisBRotary**

## New Macros not yet included in the documentation

### VirtualZAxisBRotary

Function: Miscellaneous

Status: Active

Valid Inputs: None

Establish a virtual Z axis using rotation planes. The input angle is defined by the local B axis value. The **BAxisMotion** macro is used to specify incremental/absolute, and must be called prior to calling this macro. This angle defines the angle at which the real Z axis is offset from the virtual orthogonal Z axis.

The macro **Ijk2AbcType** has the following new "types":

15. Specific: Old ElectroImpact Tape laying machine
16. Specific: Old Test Tape laying machine
17. Specific: 5-axis tripod type mill with a B/A head rotation
18. Specific: Tricept machine.
19. Specific: ElectroImpact Tape laying machine
20. Specific: Tricept machine with no travel limit checks.
21. Generic: A
22. Generic: B
23. Generic: C
24. Coming in V6.2
25. Generic: BA, also support nutator at any angle

