What's NEW in VERICUT 7.2

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July 27, 2012

Dear VERICUT® User:

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

The VERICUT 7.2's NC program 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 7.2. Take a moment to review what's new and improved in this release.

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Sincerely,

Bill Hasenjaeger

CGTech Product Marketing

VERICUT 7.2 Release Notes

July 27, 2012

VERICUT 7.2 Enhancements

CAM Interfaces

A new **Esprit-to-VERICUT Interface** is added.

The **GibbsCam-to-VERICUT Interface (GibbsV)** is enhanced as follows:

- Support is added for multi-correctors.

- Subroutines can now be added when the offset table is set to none in Japanese.

- Support is added to enable defining different work offsets for different stocks and subsystems to fully support Mill/Turn jobs.

- Support is added for Tap tools.

- Support is added for using SubRegisters for Work Offsets.

- Support is added for Probe tools. A VERICUT Probe tool will be created for a GibbsCAM Lollipop tool with "PROBE" comment.

- A new check box, **Use Comment As Tool ID**, is added. When toggled "**Off**", GibbsV will use the tool group and tool number as the tool ID and set "**Tool Change By**" to "**List**". When toggled "**On**" GibbsV will use the first quoted string from the comment field as the tool ID and set "**Tool Change By**" to "**Tool Number**".

The **Mastercam-to-VERICUT Interface (MCAMV)** is enhanced as follows:

- Stock, Design, and Fixture models can now be selected interactively.

- Mastercam Tap tools are now passed to VERICUT as Tap tools.

- STL Stock, Design, and Fixture models can now be passed to VERICUT.

- Tools can now be merged into a Tool Library file referenced by the setup.

- All WCS in Mastercam can optionally be passed to VERICUT.

- When an Operation is selected, all child NC programs are now automatically selected like in Mastercam.

- More Mastercam tool data is now passed to Tool Manager.

  The Manufacturers tool code in Mastercam is passed to the Cutter ID in Tool manager. Default to standard Cutter ID if not present (Cutter1)

  The Holder library name is passed to the Holder ID in Tool Manager. Defaults to the standard Holder ID if not present (Holder1)

  The Chuck is passed to the Holder Description in Tool Manager. If Chuck does not appear in the Holder Description, the standard holder type is used. (e.g. SOR)

- Support is added for Mastercam X6.

- The Mastercam upper shank is now transferred as a Shank component.

- A **SubSystem ID** can now be specified when creating VERICUT G-Code Tables.

The **Pro/E-to-VERICUT Interface (PROEV)** is enhanced as follows:

- solid tool cutters and solid tool inserts are now exported as polygon files (VERICUT or STL).
- Milling tools with multiple solid inserts, where VERICUT_TYPE = INSERT, will now be exported as polygon files.
- Milling tools with solid cutters, where VERICUT_TYPE = TOOL, will now be exported as polygon files.
- Lathe tools with solid inserts, where VERICUT_TYPE = INSERT, will now be exported as polygon files.

G-Code Processing

A new SubSystem Motion window (Info menu > SubSystem Motion) is added. Its interactive display is intended to help create complex multi-channel machine configurations. It shows how NC program commands move axes in subsystems:

Mapped Axes
Linked Components
Coupled Components
Offsets and positions

VERICUT's cutter compensation is enhanced so that it looks ahead a large number of blocks, to more accurately emulate how a modern CNC looks ahead. This feature is activated with new macro **CutterCompFull** with Override Value = 1.

The "Process during Scan" field has now been removed from the Add/Modify Word/Address window. Three automatic conversions will be done in V7.2 for all pre-V7.2 files.

1. If the **EndSub** macro is specified and the Scan NC Program Files option, on the Configure Setup menu: G-Codes tab is toggled off it will be changed to the **ReturnFromSub** macro.

2. If the **EndProgramRewindSpecial** macro is specified and the Scan NC Program Files option, on the Configure Setup menu: G-Codes tab is toggled on, it will be changed to the **EndProgramRewind** macro.
3. After checking for the above, the Scan NC Program Files option, on the Configure Setup menu: G-Codes tab will be toggled off for all macros. The code will then be based strictly off the internal scan flag for each macro.

The new cycle logic is now fully implemented and is the default. The macro **NewCycleLogic** only needs to be called to turn off this feature.

The following macros are now Obsolete:

CycleClearanceDistance
CycleIncDepthType
CycleIncRapidType
CycleRapidLevelInitial
CycleRapidLevelInv
CycleRapidLevelValue
CycleRapidLevelValueMult
CycleRapidLevelZeroTracking
CycleRapidType
CycleRetractInitial
CycleRetractSpecifiedpoint
CycleRetractSpecifiedpointZT
CycleRetraction
CycleUvDepth
CycleXyzDepth
RetractLevelInitial
RetractLevelRpoint
RetractLevelSpecifiedpoint
RetractLevelClearanceRetract
XRetractSpecifiedpoint
YRetractSpecifiedpoint
ZretractSpecifiedpoint

The status of all spindle components is now available in the Status window.

The **G-Code Processing > Utilities > Find Word window: Override Text tab** has been renamed to **Override Value and Text tab** and has been enhanced to enable searching for an Override Value. If only one of the text fields is filled in, it is the one used for the search. If both text fields are filled in the Find Word utility will look to match both. (If both fields are empty no searching happens, as before.) Note that in this context Override Value is understood to be an override expression. That is Override Values that are just numbers, like "1", will be ignored.

The **G-Code Processing > Utilities > Validate** feature now looks for undefined words in the G-Code Processing window.

A new macro, **HelicalAddFullLoops**, is added to provide the correct motion when the circle definition is a full circle. The new macro works as follows:

- If the motion circle has same start and end points this counts as one full circle; what is passed by the macro will count as extra full circles.
- On the Turn word the new macro should be called with no overrides.
- The current macro **HelicalFullLoops** is still active and didn't change.

A new macro, **GetCurrentTime**, is added to return a numeric response, in the variable specified by text argument, in the format of hhmmss.

A new macro, **MaxCharsPerBlock**, is added to enable specifying the maximum number of characters that can be used in a single block. This macro is a global macro (not subsystem specific), and is passed the maximum number of characters per block. If the value is less then or equal to 0, then no checks will be made. If this flag is set, and the number of characters in a block exceeds the maximum limit, an error is output. This macro would typically be called during the Reset event.

A new macro, **DuplicateLabelCheckOnOff**, is added to enable adding an optional Error message when a label is defined twice in the G-Code. A value of 1 turns on the Duplicate Label Check, and a value of 0 turns it off. The default is off.

SetDynamicVars, CurTool is updated during BlockFinish. The initial tool will now update the variable indicated with SetDynamicVars, CurTool on the first BlockFinish.

A new macro, **SpindleOrient**, is added to enable orienting the spindle without the use of a rotary.

A new feature, **SubSystem Motion**, is added to the Info menu to assist in debugging problems associated with the configuration of complex machines.

A new macro, **CutterCompFull**, is added to enable turning on, and off, full look-ahead mode for 2D cutter compensation.

New macros, **Heid_ZAxisMotion** and **Heid_ZAxisIncreMotion**, are added to support using the Heidenhain RND command in the ZX plane.

NC Program Preview is added to the Analysis menu and an NC Program Preview icon is added to the VERICUT Toolbar.

A new macro, **CycleTurnStartFrom**, enables you to specify how cycle motions are to be processed. An Override Value of 0 causes the cycle motions start from the position of the tool and move toward the contour definition. An Override Value of 1 causes the cycle motions to be created within the bounds of the defined contour.

New macro, **LinkCompRegName**, is added to support a new method of GEOAX that looks at the Component Name and not the Component Type.

Machine Simulation

The probing tool definition is extended to include a sphere-less probe, which is effectively an end mill cutter. To define such a probe enter zero as the sphere diameter.

The ability to select multiple model files at one time, when using the Open file selection box, is added.

Support for multiple turning axes with arbitrary orientations is added. The new feature supports any number of different turning axes with any orientation. The only condition is that the stock turning spindle must be stopped prior to changing the turning axis (via **ActiveSpindleOnOff** macro). When the spindle is turned on again, VERICUT automatically detects a new turning axis and adjusts the turning material removal accordingly. The stock profile in the profile view is updated at every change of the turning axis. If a turning axis is not one of the principal X, Y, or Z axes of the cut stock, rebuilding of the profile may result a performance hit.

Support is added to enable programming a robot to use a user-defined CSYS to orient a robot.

Double quotes are now automatically removed if they are the first or last character in a Type II Text argument.

OptiPath

A new OptiPath mode, **Interactive OptiPath**, is added to enable optimizing from a saved simulation. Interactive OptiPath provides the following benefits:

- Adjust Optimization settings and re-optimize without re-running the simulation.
- An interactive panel displays cutting conditions.
- Navigate the NC program evaluating cutting conditions, optimized feeds and speeds.
- See immediate results.

New messages in the logger "Optimization suspended/resumed via comment at record number xxx (NC line)" is output when optimization is suspended when there is a (VERICUT-OPTIPATH OFF) in the G-Code file.

The number of decimal places available for the Unit Power text field has been increased from 2 to 4.

VERICUT now displays "N/A" in the Status window and optimized time is removed from the "Optimized" Tool Use Graph and the "OptiPath Calculator" when OptiPath is in a mode where optimized time cannot be calculated, such as when Apply Acceleration to Cycle Time is toggled on.

Tool Manager

Tool manager is enhanced so that a complete tool assembly can be referenced.

A referenced tool assembly in a Setup's Tool Library will now use the modified tool assembly data when the tool assembly in the master Tool Library is modified.

Turning Tools with CAD model or STL inserts can have a new **Qualified Dimensions** setting in Tool Manager which is used by VERICUT to correctly position and project the insert cutting faces on the turning plane. To use this new feature, set the **Qualified Dimensions** option equal to the corresponding Driven Points for CAD model or STL turning tools in Tool Manager.

A new Tool Library file locking mechanism is added to Tool Manager. The locking feature is enabled by default. This feature can be turned off by setting an environment variable: Set CGTECH_TOOL_LIB_LOCK=FALSE.

> When locking is enabled, a lock file is created when a user opens a tool library file in Tool Manager. When a second user opens the same tool library file, Tool Manager checks for the existence of a lock file. If a lock file exists, the following warning is displayed: "… file is already opened by another user. Save menus are disabled". The "Save", "Save As", "Save Selected Tool" menus are disabled. The menus stay disabled until a different unlocked file is loaded or via "New File" or "Close".

> The lock file name = "~vc" + tool library file name + ".lck". It is created in the same directory where the tool library file is located. If the Tool Library file is read only, then no lock will be created.

A new feature is added to enable using the information contained in a spreadsheet to automatically create a tool library.

When you modify an OptiPath record's Material or Machine, then click "Modify" to update the record, you are now prompted with the following message: "OptiPath record's description, material and machine do not match selected record. Do you want to modify or add this record?" Modify, Add, and Cancel buttons are available for your response.

When a Tool ID is Referenced, the path and filename are displayed in a tip when cursor is hovered over Tool ID. The length of time that the tip is displayed has been increased.

A new feature, **One-sided knife**, in the Add/Modify Knife component window enables creating asymmetric (one sided) ultrasonic knives.

Changes to the Tool Manager Report are now displayed in the Preview when re-opening the Report Template. A "Refresh" icon is added to the Report Template toolbar to enable refreshing data when needed.

Tool Manager now retains the values used on the Translate/Rotate tab for From, To and Rotate fields when swapping between tool components and other tools.

A new batch command is added to enable importing multiple DXF files into Tool Manager.

> toolman batch input_dxf_file=drive:path output_tls_file=drive:pathfilename.tls cutter_layer_name=nnn holder_layer_name=yyy tool_type=mill|turn units=millimeters|inches control_point=tip|origin

> "input_dxf_file" causes the conversion. Its value can be folder(s) or file(s). Multiples are allowed, comma separated. Each .dxf file is read and a tool is created. The tool ID is the name of the .dxf file (not including the ".dxf"). Files without ".dxf" are ignored when input is a folder.

> "output_tls_file" output tls file name, optional. Default is input_dxf_file.tls.

> "batch" is optional. If "batch" is not present then tool manager opens after the conversion. If batch is present then the named .tls file is created and exits.

> "cutter_layer_name" is optional. Default is "CUT". Is the layer name of the cutter profile in the dxf file. Can be multiple, comma separated.

> "holder_layer_name" is optional. Default is "NOCUT". Is the layer name of the holder profile in the dxf file. Can be multiple, comma separated.

> "tool_type" is optional. Default is "mill".

> "units" is optional. Sets the units for the tool created in Tool Manager. Default is "millimeter".

> "control_point" is optional. Default is "tip". If "tip" then tool manager creates a control point (1) at the minimal Z extent of the "CUT" layer geometry. If "origin" then tool manager does not create a control point and the tool origin is used by VERICUT instead.

A new feature, **OK to Mill**, is added to the Drill Tool definition window. When toggled "On", this feature enables using a drill tool to be used to chamfer.

Support is added for Polishing Tools.

- Uses 2 shapes to represent polishing region
  Outer extent of polishing contact
  Inner "polish limit"
- Colors the cut stock surface by intersection with the polishing tool
- Error message when "polish limit" contacts cut stock

New tool carrying components are added.
- Turret

  Turret component does not use an axis
  Replaces A Turret, B Turret and C Turret

- Gang Tooling Post

    Does not use a turret
    Directly configure a gang-tooled machine
    The Gang Tooling component does not rotate (only carries tools)

Verification

New feature, **Perform Syntax Check**, is added to the Analysis menu to enable checking all NC program and NC Subroutine files referenced by the "current" setup for syntax errors.

New feature, **Cutcom Sketch**, is added to the Info menu is a Cutter Compensation debugging tool that enables you to visually analyze:

- the uncompensated tool path
- the compensated tool path
- the Cutter Compensation offset of each motion segment

A new "Tools Used" feature enables you to see at a glance the tools that are being used for the "current" Setup. At each tool change in the simulation, an image representing the tool component type along with the tool's ID is added to the Tooling branch in the Project Tree.

VERICUT now supports material removal with any number of SOR cutters in a milling tool which can be positioned and oriented arbitrarily with respect to the tool zero frame. When the milling spindle is turned on, we assume that each such cutter spins around its own z-axis, and all cutters remove material. Material removal with such tools is supported only for the 3-axis and circular motions. 5-axis cuts with such tools are not currently supported.

Support is added for Siemens 840d commands INVCW, INVCCW: Involute interpolation.

The ability to select multiple Project Tree objects is added for Model, Component, Coordinate System, NC Program, and NC Subroutine branches.

In NC Program Review and NC Program Preview, colors are added to toolpath line displays to differentiate between rapid, linear and circular motions. A dashed toolpath line is used to represent motions that do not remove material.

The File Summary window is enhanced as follows:

- The Copy Files functionality has been moved to the File Summary main window.

- A new feature, **Copy selected files to**, in the File Summary window, enables you to specify whether to copy the files to a directory or to a Zip file.

- Toggles have been added to specify which files are to be selected (checked) or not selected (unchecked). The setting the selected/not selected toggle for a parent object now automatically sets the selected/not selected toggle the same for all child objects. For example, setting the toggle as "selected" for a Machine Files

branch will automatically set the toggle for all child files under the Machine Files branch to be "selected".

The following summarizes the changes made regarding how Design components are selected for interactive AUTO-DIFF and Constant Gouge Check. The changes enable optionally blanking a Design component (so that it does not obstruct the cut stock during simulation) but still able to use it in Constant Gouge Check and interactive AUTO-DIFF.

- Constant Gouge\Excess Check tab is removed from the AUTO-DIFF window and moved to the Project Tree's Check Collisions Between menu. Accordingly, the Constant Gouge Check settings are moved down from the Project to the Setup level.
- A new "Use With Constant Gouge/Excess Check" check-box is added to the Configure Component: Design menu, Component tab in the Project Tree to identify which designs will be used for Constant Gouge/Excess checking, regardless of visibility. The default is "ON". When loading pre-7.2 projects, the check-box state is set based on the workpiece visibility of the design components.
- Both Constant Gouge Check and the "Use With Constant Gouge/Excess Check" feature can be turned on, or off, at any point in the simulation.
- A **Design Component** choice list is added to the AUTO-DIFF window: Settings tab to enable selecting the design or design point component to be used regardless of its visibility status.

Shortcuts Ctrl+X, Ctrl+C and Ctrl+V for Cut, Copy and Paste respectively can now be used in the Project Tree.

A new checkbox is added next to **Maximum Milling Depth** in the Configure Component: Fixture menu. When "OK to Cut Fixture" is toggled "on", and the new checkbox is toggled "off", all tool/fixture collisions are ignored, no matter what the **Maximum Milling Depth** setting is. When "OK to Cut Fixture" is toggled "on", and the new checkbox is toggled "on", the **Maximum Milling Depth** setting is taken into account as before. Note that Maximum Milling Depth = 0 is now invalid and VERICUT will not allow setting it to zero. When reading a pre-7.2 project, the new checkbox state is set to "on" if and only if the **Maximum Milling Depth** value is positive (zero excluded). Thus, reading a pre-7.2 project with Maximum Milling Depth = 0 will result in the new checkbox state "off" meaning that all fixture collisions will be ignored, as before.

A new option, **Add NC Program Files** is added to the right mouse button menu for an existing NC program in the Project Tree.

In the View Attributes window and in the right mouse-button menu of a Workpiece view, the **Attach Component** option is replaced by a **Display Stocks** option with a choice list containing each individual stock component name plus an "All Stocks" option. The "All Stocks" option will only be displayed if all stock components have a common non-moving parent component. This common non-moving parent component is the component that the Workpiece view is attached to and its name will be displayed in the view name.

A new option, **Replace** is added to the right-mouse button menu for an existing NC subroutine in the Project Tree.

OK to Cut Fixture is enhanced to allow Rapid motion retracts along the tool axis.

A new check box, **Keep Holder Stack**, is added to the Project Tree Configure Tooling menu. If toggled "on" (checked) the holders will move together to the highest adjusted position.

A new **Update** button is added to the Project Tree Configure Tooling menu. Pressing the **Update** button forces VERICUT to Calculate Min. Cutter Extension for the current tool, the current adjusted values will be displayed, and a message will display asking about saving the Tool Library file. In any event, when the motion resumes the **Min Cutter Extension** calculations will continue as if nothing happened.

A new **Middle Point** Location point X, Y, Z values is added to X-Caliper output for Air Distance, Thickness, and Distance/Angle.

The following summarizes enhancements are made for Workpiece View:
- Refine Display speed is improved by using multiple processors. Display processing is done in the background so VERICUT's desktop continues to be active.
- Multiple Stock components are now displayed in one Workpiece view. The Stocks may not move relative to each other.

Dynamic Section is available in the Section window by dragging the section plane to the desired location when in Section on Mouse Pick mode.

The accuracy of the approximation used to build the spun profile of STL turning components is increased in order to provide a better display of the spinning components.

A new constraint type, **Align Cylinder**, is added to the Configure Component menu: Assemble tab to enable aligning a component or model by the axis of a cylinder.

The Time and OptiPath Time values in the Status window are now displayed in hh:mm:ss format.

In the Status window the mouse scroll wheel action has been increased to be about to be about 1 line of data per click.

The Tool Summary table is enhanced so that only one tool entry is added when using an Alternate Tool.

When opening a VERICUT project file by double clicking on it in the Windows Explorer window, the project file is now added to the Recent Files list.

The "active" tool is now highlighted in Tool Manager when Tool Manager is opened during a simulation.

The File Summary table is enhanced to enable selecting all NC program files associated with a particular setup with a single click.

Miscellaneous

The following information has been added to the **Help menu > License** window and the **Help menu > About VERICUT** windows:

Customer Name
Customer ID
Server ID
Host ID

FastMill is automatically turned off when creating a VERICUT Review file so that material removal in the Workpiece view is displayed when the Review file is replayed in the VERICUT Reviewer.

A Shank Diameter option is added to the Tool Summary Table for use in VERICUT Reports.

An interface to the Heidenhain iTNC530 programming station is added.

String to Number conversion is added in Post-Processor. BASIC functions CDbl and CInt are now available. Note that the CInt command actually converts to a floating point value first, and then rounds the number to the nearest fixed point value. This prevents an error message when the string contains a decimal point.

Status window configuration data saved in pre-V7.2 project files is not fully compatible with the new V7.2 format. As a result, when pre-v7.2 project files are opened in V7.2, previously selected status fields will be displayed but you will need to re-specify the order in which the fields are displayed, then save the project file in V7.2 to save the settings.

The library, heimplus.ctl, control file is updated so that G7 Working Plane Commands now use the control file instead of a subroutine.

16 new turn and mill/turn Training Sessions are added.

Problems Resolved in V7.2

CAM Interfaces

GibbsCAM-to-VERICUT Interface (GibbsV)

The items available in the "From CSYS" pull-down list are now correct.

GibbsV now creates the correct flute lengths for both tools in the VERICUT tool description for situations where there are two tools in the same turret position and one of the tools is a tap tool.

Tool components are now positioned correctly in the sub-spindle for a specific project file.

GibbsV now successfully launches VERICUT on Windows 7 computers when the installation path contains spaces.

Stock work group geometry is now supported in GibbsV for passing a 2D SOR stock model from GibbsCAM to VERICUT.

GibbsV now passes the correct gage point for milling tools from GibbsCAM to VERICUT. Also, the position is now correct when the tool is automatically mounted on a turret.

GibbsV now correctly passes both holders to VERICUT for a specific GibbsCAM project where there are two tools in the same turret position.

GibbsV now passes the correct Lathe Turn tool Driven Point to VERICUT.

GibbsV now passes the correct Lathe Turn tool Insert thickness direction to VERICUT.

GibbsV no longer passes a tool's Driven Point value if the value is 0.

Mastercam-to-VERICUT Interface (MCAMV)

MCAMV now passes the correct Tool Type from Mastercam to VERICUT.

The correct tools are now passed through MCAMV for Mastercam files with two operations.

MCAMV will now output the Stock and/or Model coordinate system(s) when they have been selected in the interface.

A problem causing long delays while MCAMV is processing data to send to VERICUT is resolved.

MCAMV now correctly creates the stock for the second setup of a specific multi-setup job.

False "Tool library parser error: Profile cannot cross itself at line ..." errors are no longer output for 2 tool profiles in a specific project file.

MCAMV now produces the correct tool data for 2 tools in a specific Mastercam file.

MCAMV is modified to use only main operation groups as setups, but will process all sub-groups. This is done for the following reasons:

- to reduce the number of operation groups to select
- to avoid confusion when a main group is selected and its subgroup is not
- to keep the transfer of data consistent with VERICUT which does not have sub-setups

Pro/E-to-VERICUT Interface (PROEV)

The geometry of specific exported milling and turning tools from Pro/E to VERICUT using PROEV is now correct.

NX-to-VERICUT Interface (NXV)

NXV now assigns the correct D2 value for a specific inch threading tool being passed from NX to VERICUT.

AUTO-DIFF

AUTO-DIFF profile mode is considerably improved. False gouges are no longer reported along the outside vertical walls of an STL Design model for a specific project file.

The AUTO-DIFF Status light no longer turns red because of an 'Uncut Difference' when the 'Report Uncut Differences' feature is toggled off.

AUTO-DIFF behavior is corrected as follows:

- The AUTO-DIFF comparison is always done between the Stock and Design components selected on the AUTO-DIFF window, independent of the design component's visibility.
- When AUTO-DIFF processing is completed, and the Display Design feature is toggled "on", only the Design component used for the comparison is displayed. Other design components, regardless of their visibility status are not displayed.
- When X-Caliper is used after AUTO-DIFF > Compare, now only Design components displayed in the graphics area are reported. (See #2).

G-Code Processing

The **CycleBoreShift…** macros now work correctly with Zero Tracking.

The **IncrementalShiftRotationDynamicIndex** and **IncrementalShiftRotationDynamic** macros are updated to work with rotaries.

The **SiemensPolarAngle** macro is updated to look to see if there was motion on the X, Y, and Z axis rather then looking for specific words on the block.

The **DefineCsys** macro no longer causes VERICUT to report false "The Word) is not defined" error for a specific VERICUT user file.

Tool movement is now correct for a specific project file.

Cutter/fixture collisions, when in RAPID state when the tool is coming down on the fixture during a peck drilling cycle, are now ignored when **OK to Cut into Fixture** is toggled on.

The values of the current tool diameter/radius dynamic variables are now correctly set at the tool change.

The **Ijk2AbcType** macro now produces the correct angles when using a CBA head.

Delete Detached Stock now works correctly when using the **ChangeStockTurningAxis** macro to produce multiple turning orientations.

When an axis is locked with the **LockComponentOnOff** macro, the **WorkingPlane2Abc** macro no longer generates a false error as if the axis was moving.

A false "Shared component "C2" moved by more than one subsystem" is no longer output for a specific project file where there is a C2 offset applied with RTCP turned on for the upper head, and the lower channel is driving C2 but is inactive.

The **ProcessCompNameValue** macro no longer converts the units for rotary components.

Cutter Compensation is now correct in a specific project file when turning and using a CR command in combination with a G42 command.

The motion in all views (Workpiece, Profile and Machine/Cut Stock) is now consistent for a specific Sync project file.

The ORIVECT (ORIPLANE) code is enhanced to support the POLE (singularity) logic. New macro, **OrivectPoleAngle**, is added to provide the ability to override the default angle of 2 degrees. These changes were added to produce same rotary motions in VERICUT that are seen on the actual machine.

After changing subsystems, and then later restoring them, "inactive" axes are no longer set back to "active" for a specific project file.

Subroutines for MAKA controls that contain a Q after the P** are now correctly found.

The **AutosetToolManLengthVars** macro is updated to multiply the offset by 1000 if the "Control Type" is set to "NUM".

When a G10 is programmed to set the work offset, false "Error: Moving Locked Component: B" errors are no longer output.

Syntax Check's "Missing parentheses or brackets in IF or WHILE statement" check is enhanced to detect specific invalid Fanuc IF AND THEN statement syntax.

False errors are no longer reported when processing files with Tabulations.

Metric Probe tools are now correctly converted to inches.

Motion is now correct for situations where a G42 and a D1 are used in the same block.

The motion for a Water Jet tool with 3D cutter compensation turned on (CIP) is now correct.

The CycleTurnAllowanceZ value is now applied in the correct direction with profile Z0 to Z+.

Machine Simulation

False "Fast feed rate removed material with ..." errors are no longer output for a specific VERICUT project file with the MinTesselationPoints value set to 0.

Polar Interpolation now works properly when in G68 (Rotation plane) mode.

The Workpiece view tool display, for SubSystem 2, is now updated correctly for a specific milling sync project file.

The Status window now correctly updates the Tool ID field after loading a Tool 0.

The spinning Cut Stock no longer disappears in a Machine/Cut Stock view after a milling cut in a specific project file.

Unexpected VERICUT termination no longer occurs after a **Rewind** in a specific project file.

OptiPath

OptiPath now writes out the correct feedrate when starting, and stopping, cutter diameter compensation (CDC).

Use of a VERICUT-OPTIPATH on/off comment records in a subroutine are now processed correctly.

The Safe-Distance for plunge movements are now correctly applied for the optimization of air cuts for a specific project file.

OptiPath now correctly differentiates between a "real entry" condition and a clean-up condition where the tool slides over the part touching it but is not removing material.

The OptiPath menu > Compare files feature no longer shows a difference for empty lines where there is no difference.

A tool, in a specific project file, with no OptiPath record is no longer optimized when using VERICUT-OPTIPATH on/off comment records.

Reviewer

Set Spin Center now works correctly on uncut Stock.

Refine Display is improved for small objects.

Reviewer files created for a specific multi-channel project file now display correctly in the Reviewer.

Reviewer files created for a specific project file that changes the head model by using the **ConnectToCompName** and **ConnectCompName** macros now display correctly in the Reviewer.

The Cut Stock now displays correctly after doing a **Reset** in the Reviewer for a specific Reviewer file.

In a Machine/Cut Stock view, the correct tools are now displayed in the turret, and the correct tools are displayed during the simulation when the Reviewer file is viewed in the Reviewer.

A Reviewer file created from a specific 3 setup project file now displays all setups correctly in the Reviewer.

Reviewer files created from a project file that uses the **ConnectToCompName** and **ConnectCompName** macros to change the position of the Stock now display correctly in the Reviewer.

Reviewer files created using the View menu > Resolution > Auto feature now automatically redraw the Workpiece View after zooming or rotating the view when displayed in the Reviewer.

The A-axis movements in the Machine/Cut Stock view are now displayed correctly for a specific Reviewer file when used with a Stand-alone Reviewer.

The VERICUT license is no longer lost while creating a large Reviewer file.

Tool Manager

The Tool Add/Modify window: Assembly tab settings (Translate, Rotate, Assemble, Matrix, and Csys) are now retained correctly when the Tool Add/Modify window: Assembly tab is left open and another component is selected in the Tool Manager tree.

The icons on the Tool Add/Modify window: Component tab are enhanced so that it is obvious which one is depressed.

Zoom using the mouse scroll wheel is now consistently centered on the actual position if the mouse regardless of where it is used (Revolved Profile window, Tool Manager Tool Display area, VERICUT view, etc.).

The Axis display no longer gets larger and larger when you resize the Tool Display area.

Holders now stack correctly when they are applied via the Search Tool window, Duplicate or Reference.

Automatic Gage Offset (Z) now works correctly for holders that are referenced via the Search Tool window.

VERICUT no longer reports "Error: Tool spindle spinning in wrong direction for tool "n" loaded in component "Tool", regardless of the spindle direction, if a tool has multiple sweep inserts, which are rotated about the Z-axis, and there is an insert positioned in a positive X quadrant and an insert is positioned in a negative X quadrant.

After creating a tool library using the File menu > Merge feature, the Merged file no longer gets locked preventing further saving during the "current" VERICUT session.

It is no longer possible to open Tool Library files with an older version of Tool Manager.

In Tool Manager, the Edit menu > Search Tool feature now works correctly for Probes.

Tool Manager now correctly calculates the Tool Nose Offset for a specific turning tool with an L shaped insert using Tool Nose Compensation.

The Shift Component Z option is now updated correctly in a holder component's drop-down menu after turning the Stack feature on, or off, for a specific tool.

False "Flute length must higher than starting point" errors are no longer output for profile tools that have Flute Length set in the Revolve Profile window and the starting point of the profile is not at Z=0.

Tools are no longer lost when opening a V5.4 Tool Library file in a newer version of Tool Manager.

Tool Manager Coordinate Systems height are now always stored in, and retrieved from, the preferences file regardless of whether the Csys branch is expanded or not.

Duplicating a reference no longer drops the reference file information when the Tool Library file is saved.

Tool Manager Holder Sweep files created via Reference Tool ID are no longer out of position, or incorrectly oriented, when a milling sweep holder is referenced by a turning tool or vice versa.

Tool Manager now automatically re-calculates the Tool Nose Compensation value upon Reset.

When creating a PDF tool report, using a specific report template file, the Teeth column alignment is now correctly set to center as defined.

In Tool Manager, having successfully merged the data into a "master" Tool Library file and the "master" Tool Library file is currently displayed, the tool graphic is displayed and the data in list area is now updated correctly.

A Tap cutter's stem/shank is now spun around its own Z-axis.

Verification

By default, 25 images are now displayed in the Report Template window, Preview window. Options are added to Report Template window's toolbar to enable specifying which images to display.

The Animation Slider position no longer affects whether or not collisions are reported for a specific project file.

The Stock no longer disappears if **Reset** is pressed while in NC Program Preview mode.

VERICUT now correctly handles Sub-programs passed through a CAM interface when appending to an existing setup.

When set to stop at a line number, VERICUT now correctly stops if the line calls a control subroutine. If you put a stop on a line with a control subroutine, the stop will occur after the control subroutine has been executed. It behaves this way in order to be consistent with the general mechanism of showing the line that was just executed. If you happen to be inside a control subroutine (sync job, or you stepped into a control sub), and you have a stop at on the line that called the control sub, then control will stop when you finish the control subroutine. Again, this is to be consistent with the above.

VERICUT no longer generates a false "Tap cycle feed advance is incorrect for tap tool ..." error when using a Tap tool with a G1 in turning.

VERICUT no longer generates a false "Tap cycle feed advance is incorrect for tap tool ..." error when using a tap tool in a tapping cycle while in turning.

The motion is no longer different after loading an IP file saved from the session relative to running the session from the beginning on thru.

Cutter compensation is now correct for a large radius in a specific project file.

G71/G72 turning cycles now work correctly when a specific V7.1.5 project file is run in V7.2.

A collision is no longer missed between the chuck jaws and Steady Carriage when the spindle is spinning. A new check is added to enable static collision check for spun objects created when a spindle is turned on.

Unexpected VERICUT termination no longer occurs when an invalid binary file (i.e. a binary dll file) is used for an NC program file.

Selecting a work offset after a Rewind in specific project file no longer results in an unexpected VERICUT termination.

The VERICUT session no longer runs out of memory and locks up when simulating a specific project file.

Syntax Check is now available to check the NC program for machine specific syntax errors.

The Design component can now be optionally blanked (so that it does not obstruct the cut stock during simulation) but can still be used in Constant Gouge Check and interactive AUTO-DIFF.

VERICUT now outputs an error when cutting takes place with the spindle turned on but spindle speed is set to zero.

The Air Time% value is now correct for a specific project file.

In a specific project file, any word right after the % sign (start of data) now sets the associated variable after doing a Reset.

The CGTECH_FSB_IGNORE environment variable now works correctly for the NC Programs file selection window.

The Open Machine file selection window now highlights the current machine when it is opened.

The Mouse Pick Indicator now correctly displays in the specified Mouse Pick Highlight Color on Windows 7 computers.

OK To Cut Into Fixture results are no longer affected by the Animation Slider setting.

Material removal is now correct for a specific project that uses a B-axis on a lathe with Cutter Compensation set to zero or Cutter Compensation is turned off.

After loading an IP file created after processing the first NC Program, making some modifications to a subroutine and then loading the second NC program file, VERICUT now processes the branching codes in the second NC program correctly.

OK To Cut Into Fixture now works correctly for Drills.

Support for multiple turning axes with arbitrary orientations enables an off center turned Stock in one setup to be correctly transferred to the next setup as an on center turned Stock.

False collision errors are no longer output when using **OK To Cut Into Fixture** in a specific project file.

Circular motion in a specific project file is now correct.

Error reporting is now consistent for a boring operation that bores multiple identical holes in a specific project file.

The fillets in a Profile view, in a specific project file, no longer change to tapers.

The VERICUT solid stock in the Sub-spindle, in a specific project file, no longer produces a bad display when spun.

It is no longer possible to open Machine and Control files with an older version of VERICUT.

Errors are no longer output when loading an IP file containing an encrypted Machine and Control on a Windows 7 (64-bit) computer running VERICUT Limited.

Zooming when Dynamic Controls is set to NX no longer produces lurching motions or a massive zoom from a small mouse motion.

X-Caliper Stock to Design measurement in a specific project file no longer returns an incorrect value.

The Tool Summary is now created correctly for a multiple Setup project file when one of the Setups contains an inactive NC program file.

False collision errors are no longer output for a specific project file when the Animation Speed Slider is set at 100%.

The size of a saved IP file and the time that it takes to open it has been greatly reduced.

False Holder collisions are no longer reported when cutting with a concave tool when the Animation Speed Slider is set at 100%.

The NC-program window no longer disappears when you click on a message inside the VERICUT Logger while processing a specific project file.

A specific turning tool now displays correctly in the Workpiece view for a specific project file using APT files.

In the NC program window, the current block indicator stops moving while VERICUT continues simulating a specific project file using a Water Jet cutter.

When using a VERICUT Solid fixture model, the probe now contacts the cut stock correctly.

Cut, Copy, Paste and Delete have been restored to the Project Tree, Cut Stock right mouse button menu.

When mirroring models, the mirror must be completed prior to doing any translations or rotations.

Invalid "near miss tolerance exceeded between Tap minor diameter and Stock" errors are no longer reported.

VERICUT is enhanced to save the Part Side settings for any machine components below the Attach axis in the project file.

After previewing Setup 1, of a 3 Setup project file, and then exiting NC Program Preview, the simulation now stops at the end of each setup as specified.

Unexpected VERICUT termination no longer occurs when an **EndProgram** macro is encountered in a subroutine while stepping through the subroutine in the MDI window.

When vertically re-sizing the MDI window, the NC Block List area is now expanded correctly and the NC Block entry text field and the execution buttons now remain displayed at the bottom of the window.

The VERICUT session no longer "hangs" when running a specific project file created in an older version of VERICUT with the current version Machine and Control configurations.

The **LockComponentAxis** macro now works with offset macros.

The **LockComponentOnOff** macro now activates correctly in Events and in an initialization file.

A specific STL inserted tool now displays correctly in the Workpiece view.

Refine display now works correctly while the X-Caliper: Feature/History window is open for a specific project file.

AutoSave IP and interactive Save IP no longer create redundant saved IP file entries in Project Tree.

You can now click on the Step Forward or Play buttons, and then use the Spacebar to repeat the last action when in NC Program Review or Interactive OptiPath modes like you could in previous versions of VERICUT.

When using a specific project file, File Summary now correctly exports a specific 3D holder file.

A problem causing errors to be output when "Auto-set working directory to current project folder" is set in the Preferences window and selecting File > New which causes the working directory to be invalid, because the initial unamed.project file does not exist is fixed.

The Polishing Wheel contact area, in a specific project file, is no longer displayed as RED when no errors are being reported.

NC Program Review now correctly updates the Message logger when selecting an error on the part in the Graphics area.

You can now delete a model in the Project Tree when Auto Hide feature is active.

Generating an HTML report, in a specific project file, now outputs the correct path for folders that start with the letter n.

In a specific project file, the G71 rough turn cycle start/finish locations are now correct.

Cutting Graphs can now be successfully added to VERICUT Reports.

The "-" character is now supported as a valid character within the SETVN statement, and in the processing of statements like: [#TOOL-NO] = 10.

The Setup Plan icon is now displayed in the following menu: Project menu > Report > Setup Plan.... .

Unexpected VERICUT termination no longer occurs when simulating a 6-axis robot with an angled end effector.

When the X-Caliper window is docked, the focus is now transferred to the X-Caliper window if you pick in the window.

VERICUT no longer misses a Facing Head Tool to Stock collision when simulating a specific project file.

Unexpected VERICUT termination no longer occurs when opening a specific project file.

A false collision between the retracting insert and the cut stock, with the spindle turned off, is no longer reported when simulating a specific project file.

Status window Spindle information now corresponds to the actual simulation spindle state when simulating a specific project file.

Unexpected VERICUT termination no longer occurs when simulating a specific project file.

Unexpected VERICUT termination no longer occurs when in "NC Program Review" and change from Setup 2 to Setup 1.

Miscellaneous

VERICUT's Uninstall utility now correctly uninstalls all valid items from the installation.

VERICUT's Uninstall utility no longer results in "cannot find a valid Java virtual machine to load, you may need to reinstall a supported java virtual machine" errors.

The Sentinel LicenseTool.exe no longer fails to recognize a valid Host ID.

The library hei530.ctl control file is updated to support 3D cutter diameter compensation (CDC).

The library mazatrol_matrix_m.ctl control file is updated to support a 'G 68' condition for the words I, J and K.

The library num1060m.ctl control file is updated.

The **atan2_d** function is updated to recognize the difference between 1 or 2 arguments and will provide the correct results for either format.

OpenGL has been turned off for the "standard" VERICUT project files (vericut.vcproject and vericutm.vcproject).

The FeedPerMinute before G94/FeedModeMinute now works correctly for a specific project file that uses the library acr950mc.ctl control file.

The library num1060m.ctl control file is updated to prevent a crash in a specific project file.

The library makino_mag3_toolchange.sub subroutine now works correctly for inch projects.

The library mazm32.ctl control file is updated so that tool length compensation now works correctly.

New library control files, mazatrol_matrix_m.ctl (mill) and mazatrol_matrix_t.ctl (turn), are added and use the latest techniques for drilling cycles.

The library fad88a.ctl is updated to support drilling cycles.

The library heimplus.ctl control file is updated so that an M30 calls **EndProgramRewindSpecial** instead of **EndProgramRewind** which was causing Skip and Repeat commands to fail.

The library sin840d.ctl control file is updated as follows:

- to change the format of the SUPA word to Type: Macro, Sub Type: None instead of Type: Macro, Sub Type: Numeric.
- to change the format of words DIAMON, DIAMOF, and DIAM90 to Type: Macro, Sub Type: None.
- so that a G500 code does not cancel tool length compensation.
- so that the base frame offset does not get cancelled by TRAORI or TRAFOOF.
- to add support for SUPA under the ACN, ACP, and DC for all rotaries.
- to update the definition of ACC to avoid false movements and unexpected VERICUT termination. The library sin840d.def file has also been updated.
- so that AROT is cancelled by TRANS in VERICUT like it is on the real machine.
- so that the work offset UIFR G54-G57 set and displayed correctly.

User Defined Tag (UDT) values, used by a specific report template, can now be deleted from project file.

The time required to start NC Program Review for very large NC programs is greatly reduced.

Sample files vcblock.vcproject and vcblockm.vcproject are updated to include missing Design Point components.

Having NC Program Review enabled in the Properties window no longer causes a performance degradation for a specific turning project file that remove large amounts of material.

A specific parting tool now displays correctly in the sub-spindle view of a specific project file. VERICUT now correctly supports the case when cut stock is transferred to another stock component in the middle of block and there are tool motions afterward in the same block.

The helical motion in the XY plane when a K value is used with the macro **CircleCenterZ**, for a specific project file, is now correct.

A new environment variable **CGTECH_REVIEW_SNAP_SHOT_FREQ** enables you to specify how frequently (after how many cuts) the entire cut model is saved, to reduce the review data file size. The default frequency is 3000 cuts. A higher number means that the entire cut model is saved less often, thereby reducing the size of the review data file. O or a negative number will not save cut model in the middle of process at all.

New Macros in V7.2

AxisMapping
ChangeStockTurningAccess
CutterCompFull
CycleTurnRoughIgnoreFinish
CycleTurnStartFrom
GetCurrentTime
Heid_CircleRadius
Heid_ZAxisIncreMotion
Heid_ZAxisMotion
HelicalAddFullLoops
LinkCompRegName
MaxCharsPerBlock
MotionCCWInvolute
MotionCWInvolute
OrivectPoleAngle
SetRobotInputType
SpindleOrient
SpindleSpeedCheckOnOff
TransformMappingOnOff
UAxisMotionLimit
VAxisMotionLimit
WAxisMotionLimit
XAxisMotionLimit
YAxisMotionLimit
ZAxisMotionLimit

Macros not yet included in the documentation

Heid_ZAxisIncreMotion

>**Function —** MOTION
>**Status —** ACTIVE
>**Comment —** Added V7.2
>**Valid Inputs —** Text, Value

Similar to **ZAxisIncreMotion** with an additional look-ahead check being made for RND, CHF, G24, or G25 on the next program block. When RND, CHF, G24, or G25 is detected on the next block, the actual motion is deferred until the next block is processed and the corner round or chamfer can be calculated.

Also see: **Heid_ProcessRNDorCHF**

Heid_ZAxisMotion

>**Function —** MOTION
>**Status —** ACTIVE
>**Comment —** Added V7.2
>**Valid Inputs —** Text, Value

Similar to **ZAxisMotion** with an additional look-ahead check being made for RND, CHF, G24, or G25 on the next program block. When RND, CHF, G24, G25 is detected on the next block, the actual motion is deferred until the next block is processed and the corner round or chamfer can be calculated.

Also see: **Heid_ProcessRNDorCHF**

MotionCCWInvolute

>**Function —** MOTION
>**Status —** ACTIVE
>**Comment —** Added V7.2
>**Valid Inputs —** None

This macro is used to simulate counter-clockwise involute interpolation motions, as specified by the Siemens sin840d INVCCW command. Involute is a special kind of spiral.

MotionCWInvolute

    Function — MOTION
    Status — ACTIVE
    Comment — Added V7.2
    Valid Inputs — None

This macro is used to simulate clockwise involute interpolation motions, as specified by the Siemens sin840d INVCW command. Involute is a special kind of spiral.

SetRobotInputType

    Function — TAPE_LAYING
    Status — ACTIVE
    Comment — Added V7.2
    Valid Inputs — Text

This macro is used to explicitly set the input type for a tape laying robot when IJK or PQR vectors can be replaced by Euler angles or RPY angles. Enter the type in the Override Text field.

AUTO	= the automatic solution (old logic) where VERICUT can resolve the input type based on words in block. It supports IJK and PQR vectors as one choice or ABC virtual angles as another choice to get the IJK vector but not the PQR vector.
XYZ_ABC	= XYZ position and ABC virtual angles (Euler angles) defining the IJK vector only (no direction vector).
XYZ_ABC_DIR	= same as above and direction vector of the tool based on the X vector of the matrix.
XYZ_CBA	= XYZ position and CBA virtual angles (RPY angles) defining the IJK vector only.
XYZ_CBA_DIR	= same as above and the direction vector of the tool is based on the X vector of the matrix.
XYZ_IJK	= XYZ position and IJK tool vector with optional PQR direction vector.

VERICUT 7.2.1 Interim Release

Release Notes

December 11, 2012

VERICUT Version 7.2.1 is available for all supported Windows platforms.
V 7.2.1 contains everything described above for V7.2, plus the following additional fixes/enhancements.

CAM Interfaces

CATIA-to-VERICUT Interface (CATV)

CATV no longer takes a long time to read data from CATIA and populate the fields in the CATV Interface.

Edgecam-to-VERICUT Interface

The Edgecam-to-VERICUT Interfaces now correctly creates a VERICUT solid of revolution from an EdgeCAM wireframe stock model.

GibbsCAM-to-VERICUT Interface (GibbsV)

The GibbsV is enhanced to add support for using the GibbsCam Lathe Turn 2D profile as either a Stock or Design SOR. The following choice lists are added:

Stock WG Override – Specifies the work group geometry to be used for the stock model instead of the default definition.

Design WG Override – Specifies the work group geometry to be used for the design model instead of the default definition.

The GibbsV no longer fails to create a Stock SOR model file when a "/" character is used in the Workgroup name.

The GibbsV now passes GibbsCam Mill tools for Lathe/Mill-Turn machines to VERICUT in the correct orientation.

The GibbsV now transfers/creates Lathe Turn tools with the correct Driven Point.

The GibbsV now transfers turning tool holders to VERICUT in the correct orientation.

The GibbsV is enhanced to merge the new tool library created from GibbsCam tools with the template tool library. A choice list with the following options is added:

Generate Tools from GibbsCAM information - enables VERICUT to use the tool library file created by the GibbsCam-to-VERICUT Interface.

Use Selected Tool Library - enables VERICUT to use an existing tool library file.

Use Tools from the Setup Template - enables VERICUT to use the tool library file stored in the Setup Template rather than one created by the GibbsCam-to-VERICUT Interface.

Merge Tools into Setup Template Tool Library - enables VERICUT to merge the tool library created by the GibbsCam-to-VERICUT Interface with the tool library file stored in the Setup Template and then use the "merged" tool library rather than one created by the GibbsCam-to-VERICUT Interface.

The GibbsV now creates a CSYS attached to the Stock (or Sub Stock) Component instead of the Attach (or Sub Attach) Component.

The GibbsV now correctly passes the GibbsCam Thread/mm and Pitch values to VERICUT.

GibbsV now automatically sets tool holders that revolve around the tool axis to "spin" and sets all other tool holders, those that do not revolve around the tool axis, to "not spin".

Mastercam-to-VERICUT Interface (MCAMV)

The multiple offsets that have been setup in MCAMV are now correctly passed to VERICUT.

The following new text fields are added to the MCAMV Options window to enable specifying the Fixture/Stock/Design components to be used for the current operation:

Fixture Component Name
Stock Component Name
Design Component Name

MCAMV now retains the correct G-Code table settings when working with multiple setups.

MCAMV now applies Stock STL File, Part STL File and Fixture STL File(s) to the correct Setup when working with multiple setups.

MCAMV is enhanced so that the current height and width values of the main MCAMV window are stored in the MCAMV preferences file (mcamv_xxx_user.prefs where xxx is the Mastercam version number.

The MCAMV window no longer disappears behind the Mastercam session when using the Model Csys or Stock Csys "Browse" function is used to select a plane.

Closing the MCAMV window using the red boxed "X" in the upper right corner of the window now releases the MCAMV license.

MCAMV now passes Mastercam bar stock dimensions and orientation correctly to VERICUT.

NX-to-VERICUT Interface (NXV)

NXV now appends subroutine extensions, instead of overwriting them, when writing to the nx_xxx_user.prefs file (xxx represents the NX version).

NXV is enhanced to support tapered shank in NX8 for these mill cutter types: 5 Parameters, Ball, Chamfer, and Spherical.

NXV is enhanced to support new NX8 cutter type "chamfer tool".

NXV is enhanced to include a new "Output All Tools in One Library" check box in the NXV main window enabling you to output all tools into one tool library file when multiple setups are used.

NXV is enhanced so that the flute length for step drills is equal to the tool length.

NXV now passes NX thread mills correctly to VERICUT.

NXV now passes subroutines correctly to VERICUT and no longer outputs an error message when opening the Options window when NXV is translated to German.

An Operation Message added in the NX Program Group level now appears in the posted output when generating through NXV.

Pro/E-to-VERICUT Interface (PROEV)

PROEV 7.1 and 7.2 built for 32/64 bit Pro/E Wildfire 4.0 has been updated to use date code M220.

G-Code Processing

The Library sin840d control is updated to add definitions for AX1, AX2 and AX3.

New macro, **CutterCompFull**, is added to enable turning On/Off full look-ahead mode.

Unexpected VERICUT termination no longer results when the G-Code Processing window is selected when using a specific huge (40,000 line) control file. The following new macros are added to help reduce the size of a control file:

Macro, **TextVariableConcat**, is added to enable a new specified string to be concatenated to the existing values of an existing Variable.

Macro, **TextVariableSet**, is added to enable setting a Text or String Array Variable to a specified string. Expressions can be used for the index into the array and for the string value.

Relational offsets are now correctly updated when the offset is changed incrementally.

Type: Special, Subtype: Okuma Call, in the Word Format window is enhanced to support Okuma subroutine call nesting by supporting variables on the expression side of the assignment. For example: PX=PX. In this statement, the PX on left should be associated with the new subroutine, while the PX on the right should be associated with the existing subroutine.

False "invalid circle statement" errors no longer are output for a specific project file using cutter diameter compensation (CDC) circle sequences in G17 XY plane, in G16 YW and G17 WX planes.

VERICUT is enhanced to support 5-axis cutter diameter compensation (CDC).

The motion of the C-axis with (3D) radius compensation turned on is now correct for a specific project file.

Macro **CutterComp3d** now supports circular motion.

New macro, **CycleTurnEndFaceBox**, is added to support the Fanuc G94 Face Turn Cycle.

Macro **SpindleOrient** is enhanced to support spindle direction.

Functions **SiemensACN**, **Siemens ACP** and **Siemens DC** are added to enable forcing a rotary or spindle direction.

The Facing Head tool display and circle motion are now correct for a specific project file using a Sin840D control with GEOAX.

Unexpected VERICUT termination no longer occurs when using the MDI window to test a specific G-Code sequence.

CYCLE95 is now processed using the Siemens CYCLE95 original subroutine. All parameters are supported.

> Time is consistent and it starts cutting at the first pass, with no air cuts.
> Support is added for parameters DT and DAM.

A false Fast Feed error, when in linear feed mode, is no longer output for a specific project file.

CYCLE97 is now processed using the Siemens CYCLE97 original subroutine. The App and ROP parameters are now directly supported by Cycle97.

Conditional **AtanCondDivide** is enhanced to support multiple ATAN.

New macros, **CycleStepValueDelta**, **CycleStepValueFactor**, and **CycleStepValueMin** are added to support Haas deep cycle with step reduction.

Axis positions are now correct and a tool change is no longer missed when processing a specific 4 Subsystem Sync project file.

A specific loop sequence now works correctly when a subroutine is called within the loop.

New macro, **PoleDefinesCircleCenter**, enables you to specify that the Polar Pole should determine the circle center when the input is in Polar Coordinates.

Processing a Fanuc G72 lathe cycle now leaves the correct "finish allowance" on the part when the cycle is finished.

$P_PFRAME is now updated with ATRANS.

VERICUT no longer "hangs" with a rotary motion after ORIVECT/OriMode on.

The simulation no longer stops while the NC program continues running when using the new "polar" logic.

G61 and G62 (Tangential Approach/Retract) is now configured in Library Heidenhain Mill Plus control.

The Library sin840d.ctl is enhanced to enable MCALL to be executed when the following is commanded:

> When programming the addresses S and F if G0 or G1 is active.
> G0/G1 is on its own in the block or was programmed with other G codes.

New macro, **ResetRotaryOffsets**, enables you to reset the Base Work Offset, the Work Offset, the Secondary Work Offset, the Shift Offsets and the Program Zero offset to their initial values.

New macro, **SetRelLocationOnOff**, enables the "Values", "Additional Offset" and optionally the "Calculate Relative to Location" fields to be updated when a work offset is defined as being relational, and the offset is updated in the NC program file.

New macro, **TouchCondition**, enables you to perform a touch operation with a sensor and check that the sensor is touching a component with a sufficient foot print.

New macro, **LoggerMessage**, enables you to send specified text to the Logger.

Machine Simulation

Support is added for Dufieux's Siemens 840D sync method. This feature is implemented as follows:

1. A new "**Sin840D – INIT, START, WAITE**" Sync Method is added to the Control Settings window: Sync tab. Currently, this sync method only supports 2 channels. With this sync method, the status of the second channel is initialized to EOF.

2. A new macro, **Siemens840DSyncBegin**, is added to specify the Name of the subroutine that the second channel should process. When called from the first channel, it will activate (change the status) of the second channel, and set its starting location to be the current line. When called from the second channel, it will strip off the "_SPF" suffix, the Path name, and the "_N_" prefix and then call this subroutine. When the second channel is done with this program, it will mark its status as EOF, thereby deactivating himself.

3. A new macro, **Siemens840DSyncEnd**, has been created which will cause the first channel to wait until the second channel reaches EOF.

Siemens CYCLE83 is now able to find the label _AX3 in Sin840d.spf.

VERICUT now correctly processes the finish profile of a NUM G64 cycle.

Processing no longer stops for a specific project file when speed slider is set at 100%.

The meaning of "Ignore collisions between Cutter and Stock" on the Collision and Travel Limits window, Collision Detect tab is changed to mean Stock only. In previous releases, the label "Ignore collisions between Cutter and Stock" actually meant "Ignore collisions between Cutter and Stock like things". "Stock like things" referred to STOCK, DESIGN, and ELECTRODE.

False "out of range" errors are no longer generated for a specific project file using the **WorkingPlane2AbcType** macro with Override Value = 99.

The X and Y axes no longer move when only the Z-axis motion is programmed for a specific project file using the RotationPlane2 macro.

The axis motion for a specific project file using Polar Interpolation is now correct.

The rotation of the Driven Point Zero during the execution of a Heidenhain PLANE SPATIAL command is now correct in a specific project file.

Unexpected VERICUT termination no longer occurs when processing a specific subroutine in a specific project file.

Motion is now correct for a specific project file using a facing head with a specific STL cutter.

OptiPath

The un-optimized NC program and the optimized NC program now produce the same cut part for a specific project file.

The cycle times reported in a VERICUT Report and in the OptiPath Savings Calculator now match.

Reviewer

A command line option "save_vcreview=[filename]" is added to enable saving a review file at the end of processing. This feature is only available for use in batch mode.

Reviewer now display turning tools correctly in a specific multiple setup project file.

Reviewer now correctly displays the tool after stepping back for a specific project file that uses a multi-spindle, multi-tool machine.

The local rotary axes of a specific robot project file are now updated correctly.

Tool Manager

A new menu, Analysis, is added to the main menu bar in Tool Manager. The features in this menu (Feature, Distance/Angle, Thickness and Air Distance) enable you to use X-Caliper like tools to measure tool components in Tool Manager. Selecting any of the menu options displays the Measurement Tool window with the selected feature active.

Material removal when using a WinTool Cutter Profile which has an extra Start Point at 0,0 is now correct.

Unexpected Tool Manager termination no longer occurs when constructing a Csys using the Circle option on a 64 bit computer.

Verification

The Visible Stock and Active Tools' Holder feature in the Project Tree, Check Collisions Between menu now works correctly for Turning.

The import of tool files with multiple "." characters in file name are no longer ended at the first "." encountered, which may not be the full file name up to ".STP".

When using the X-Caliper, Stock/Design Distance option, the distance marker displayed in all views is now displayed in the error color when a gouge condition is detected.

VERICUT now prevents editing the same NC program in two Edit NC Program windows at the same time.

Using Reset Model now updates the Work Offset value when the Csys that was used to configure the Work Offset "To Location" is modified.

G12.1 Polar Interpolation now works correctly in a specific project file.

"ActionMainStep:ArrayIndexOutOfBoundsException: 54" no longer displays in the Logger when simulating with the Status window open.

Inserts are no longer rotated when a tool is "referenced" from another tool library file.

The Cut Stock in the 3rd Setup no longer changes back to look like the Cut Stock at the end of the 1st Setup.

Material removal no longer varies depending on the position of the Animation Slider.

Unexpected VERICUT termination no longer occurs when processing a specific project file.

Unexpected VERICUT termination no longer occurs when zooming in on a collision area in a specific project file.

The VERICUT session no longer freezes when rotating a view during auto-saving a view capture.

CYCLEs (e.g. CYCLE81) in a specific project file now work correctly when the **SiemensCompToVcAxisMapping** macro is used.

NC Program Preview is enhanced to work better with multiple setups.

NC Program Preview is enhanced so that with a multi-setup job, you are placed in Review mode with all setups accessible via Review's choice list. Also, the Design model is automatically moved forward from the previous setup to allow gouge checking to occur.

Tool position, in a specific project file, is now correct with 3D Cutter Compensation turned on.

Motion for a specific project file, when Cutter Compensation is turned on, is now correct.

The Project Tree is enhanced as describe below:

> The ability to drag one or more files from Windows Explorer and drop them into the Project Tree and load it to VERICUT is added.
> Supported file types are:
>
>> Project file, IP file
>> Machine, Control, Tool Library files – files are loaded to current setup
>> Model files: adopted by component or model(s) branch
>> NC Program files: adopted by NC program(s) or VCS Sequence/Ply branch
>> NC Subroutine files: adopted by NC subroutine(s) branch
>
> The ability to multi-select objects in Project Tree, e.g. for deletion, dragging/dropping, and visibility change is added.

The Primary Axis and Secondary Axis vectors on Configure Coordinate System, Construct tab now default to Primary Axis: 1 0 0 and Secondary Axis: 0 1 0 when creating a new coordinate system.

Coordinate System parameters in the Project Tree Configure Coordinate System menu are no longer retained when creating a new Coordinate System or opening another Project file.

The Stock/Design Distance feature in X-Caliper can now be used in a Profile View, similar to the way it works in a Workpiece View.

The tool path for a specific project file using circular interpolation is now correct.

In NC Program Review, with OpenGL turned on, the Machine view no longer becomes blank when stepping into the program.

Simulation time, for a specific Project file, has been reduced from 20 hours to 3 hours.

AutoSave functions are now disabled when in NC Program Preview mode.

Collision checking is enhanced so that if the Visible Fixture and Active Tool's Holders and/or the Visible Fixture and Active Tool's Cutters features in the Project Tree Check Collisions Between menu are toggled "on" (checked), VERICUT now finds all fixtures for which tool/fixture collisions are not checked by the material removal logic. These are the fixtures not visible in the Workpiece view but visible in the Machine view, and the Workpiece-visible fixtures not associated with any cut stock. For all such fixtures,

VERICUT internally adds Cutter/Fixture and/or Holder/Fixture pairs (for the active tools) to the machine collision list and do the machine collision checks.

VERICUT no longer outputs false collision errors during turret tool changes for a specific project file.

The X-Caliper Highlight Same Plane feature now highlights cut features that lie in the same plane in both the Workpiece view and the Machine Cut Stock view.

The X-Caliper "Feature/History" feature now produces the same results, for a specific feature, in both the Workpiece view and the Profile view.

Unexpected VERICUT termination no longer occurs when opening the MDI window when the project file only has a Control file loaded but no Machine file.

New function **pow** is added. The word POWER is used for raising a number to a power.

> Define POWER as Type = Function, Sub Type = **pow** when the syntax is of the form:
> #1 = POWER(3,2)
> (meaning that the first argument is to be raised by the power of the second argument)

> Define POWER as Type = Math, Sub Type = Power when the syntax is of the form:
> #1 = 3 POWER 2
> (meaning 3 raised to the second power, more commonly written as: $3 \wedge 2$)

VERICUT now finds control subroutines inside of encrypted control files.

The NC Program window no longer closes when NC Program Review is activated using the NC Program Review icon in the NC Program window for a specific project file.

The NC Program window no longer closes when NC Program Preview is activated for a specific project file.

Unexpected VERICUT termination no longer occurs when processing a specific project file.

The thread direction is now correct when executing a threading cycle on a mill/turn machine's sub-spindle.

Unexpected VERICUT termination no longer occurs when processing a specific project file on a 64 bit computer.

Material removal is now the same, regardless of the Animation Slider position, for a specific project file.

Cutter motion is now correct for a specific project file that uses a tool that has 2 cutters, and the second cutter is offset from the tool z-axis.

The Cut Stock no longer disappears from the graphics area while processing a specific project file.

The Machine view is now correctly updated, when the visibility of multi-selected machine component models is changed in the Project Tree.

All G2 commands in a specific project file are now processed correctly.

Unexpected VERICUT termination no longer occurs in a specific project file when highlighting a specific line in the NC Program window that uses Frame variables.

Unexpected VERICUT termination no longer occurs when opening the G-Code Variables window with a specific project file loaded.

Zip files created by VERICUT File Summary no longer cause errors when opened in WinZip.

The "Tools Used" list in the Project Tree is now correctly updated when using multi-channel machines.

A false collision error is no longer reported while simulating a specific project file.

A specific VERICUT project file, generated by an Edgecam-to-VERICUT Interface Operations file (Ops file), now launches correctly when the current job is in Millimeter and the template is in Inch.

Miscellaneous

A new Quick Start Training Tool is added.

> The Quick Start training tool is designed to quickly teach a new VERICUT user the "basic requirements" for setting up a VERICUT simulation, using a VERICUT CAM Interface to transfer the data from their CAM system to VERICUT. It will also teach the new user to monitor a VERICUT simulation, inspect the cut part, and finally generate and edit a process document.

> Quick Start training tools are currently available for CATV5 users, Mastercam users, NX users and Pro/E users. Quick Start tools for users of other CAM system will be added in future releases.

STEP models now display correctly in a Profile view.

The Online Help has many enhancements, updates and additions.

VERICUT Cutter Grinder Help is updated.

Unexpected VERICUT termination no longer occurs, or the VERICUT session no longer "hangs", when trying to access an AUTO-DIFF license when one is not available.

A specific extremely large CATPart model is now successfully imported into VERICUT as a Stock using the CAD Model Interface.

Referenced Tools are now included in the File Summary.

Unexpected VERICUT termination no longer occurs for a specific project file that uses "referenced" tools.

The File Summary window now displays file information when accessed from Cutter Grinder.

The "current" marker in the NC Program Review NC program listing area now moves correctly as you as you step through the program review for a specific project file.

New Macros in V7.2.1

The following new macros are added for V7.2.1

CycleTurnEndFaceBox
CycleStepValueDelta
CycleStepValueFactor
CycleStepValueMin
LoggerMessage
PoleDefinesCircleCenter
ResetRotaryOffsets
SendCommentsToLogger
SetAxisVariableNames
SetRelLocationOnOff
SiemensSpindleCompMapping
TapeCacheTows2
TextVariableConcat
TextVariableSet
WTapeMTKnife1Offset
WTapeMTKnife1OnOff
WTapeMTKnife1Pos
WTapeMTKnife2Offset
WTapeMTKnife2OnOff
WTapeMTKnife2Pos
WTapeMTProcessing
WTapeMTProcessing
WTapeMTTapeMotion
TouchCondition

VERICUT 7.2.2 Interim Release

VERICUT Composites Only

Release Notes

January 18, 2013

VERICUT Version 7.2.2 is available for all supported Windows platforms.
V 7.2.2 contains everything described above for V7.2.1, plus the following additional fixes/enhancements.

VERICUT Composite Simulation (VCS)

Enhancements

New macro, **SetRobotInputType**, is added to provide direction vector support using following options:

XYZ_ABC = XYZ position and ABC virtual angles (Euler angles) defining the IJK vector only (no direction vector).

XYZ_ABC_DIR = same as above and direction vector of the tool based on X vector of matrix.

XYZ_CBA = XYZ position and CBA virtual angles (RPY angles) defining the IJK vector only.

XYZ_CBA_DIR = same as above and the direction vector of the tool is based on the X vector of the matrix.

XYZ_IJK = XYZ position and IJK tool vector with optional PQR direction vector.

The communication features previously created in VERICUT Composites Programming (VCP) are now implemented in VERICUT Composites Simulation (VCS) so that a running VCS session can connect to VCP and update information for the simulation. Useful information from VCP can be:

Form model geometry (facets, faces, and thickness)
Coordinate systems
Post-processor output coordinate system
NC program file name
Ply boundaries
Tow width
Tow count

Minimum steering radius
Other...?

An on/off option to display the tool point centerline path is added to VCS NC Program Review for both Machine and Form views.

The Component Name is now displayed with the Component Type in the MDI window to enable users to jog the machine using either the Component Name or the Component Type.

Component Types "Tool", "Printer", and "Marker" are added to VCS.

The representation of the knife's cut path (the ruled surface display that can be picked-on in X-Caliper) is enhanced so that it can be seen better for a small thickness. In addition, you can display knife ruled surfaces in a color different from the laid tape by assigning your favorite color to the knife entity in the Tool Manager (instead of "Inherit") to make the cut path more visible.

Problems Resolved

Unexpected VCS termination no longer occurs when simulating a specific project file.

A new NC Program Type, Siemens VNC 840D, is added to VCS to support using VNCK.

Initial Tool settings are now correctly saved and used in VCS.

VERICUT Composite Programming (VCP)

Enhancements

The "tool tips" for the "Delete Penultimate" and "Delete Last" buttons now include the names of the entities which will be deleted if the button is pressed.

A new card, "Mixed tow widths in a ply" is added to simplify working with mixed tow widths in the same ply boundary. Its features enable you to:

For wide tow packets, remove a portion of the tow packet or the entire tow packet and trim tow ends for staggered splices.
For narrow tow packets, remove a portion of the tow packet or the entire tow packet.
For wide tows, remove a portion of the tow or the entire tow.
For narrow tows, remove a portion of the tow or the entire tow.

The Post, Laser/Knife, and Probe cards are enhanced to enable adding four G-Code header lines.

A new feature, "STEP AP214", is added to the Checks card enabling you to export a STEP file with three sets of points representing ply angle deviations, steering radius violations and inadequate roller compression.

The ability to read a layup tool surface from a Siemens NX part file (.prt) into VCP is added.

New features, added to the Visualize card, include a field for the specification of an STL file, a browse button to enable finding the STL model, a switch to specify inch or millimeter, and a check-box to turn the rendering on and off.

A list of the surfaces that were selected is now stored in the ply file (.vcply) when it is saved.

The ability for the post to output XYZ coordinates of 3 nominated point locations to the NC program as text comments is added. Enter the Reference Point's name in any, or all, of the 4 G-Code header lines on the "Post" card. String and numeric variables are passed to the post-processor.

VCP is enhanced such that any non-numeric entry field, whose text exceeds the available space, will display a "tip" containing the full text when the cursor hovers over the field briefly. For example a \path\filename that is longer than the text field.

After a CAD file is read (CATPart, NX prt, STEP or SAT) and the Working Directory is set, sub-folders will be created in the Working Directory when indexing the Layer/ply identifiers.

A check-box followed by "On-form if traverse shorter than" and a numeric entry field, have been added to the Link card.

When using the ">" or ">>" buttons (of either color), if the new check-box is ticked, and if the length of a link is less than the specified distance, then an on-form link is generated.

When the "Manual sequencing" button is depressed (yellow) and the user selects tow-packets, only off-part links will be created, regardless of the check-box state or length of the traverse.

The "Use head path as link" button is still present, and when clicked will cause creation of an on-form link ... again regardless of the check-box state or the link's length. This strategy avoids the user having to adjust the new widgets when he's defining the links interactively.

The cone drawn to represent the head entry/exit is now always drawn parallel to the tool axis, regardless of the link type.

A new feature, "Highlight exposed segments of boundaries", is added to the Checks card to indicate places where the selected boundary curves are not touched by a tow.

If any data has been changed that would be retained only if a VcPly or SAT file was written, then when the user tries to exit VCP, a dialog will display prompting him to save first (with the ability to adjust file names), exit without saving, or cancel the request to exit.

Problems Resolved

Unexpected VCP termination no longer occurs when selecting a Tow Packet in Roller and Head Visualization.

A new check-box, "Ask for confirmation before overwriting any file", on the File card enables you to be optionally prompted for confirmation whenever you try to write over an existing file from any card. Default is unchecked so that current behavior is maintained. State of check-box is retained in the preferences file.

When using the "Head path links" feature on the Links card, VCP now finds the next tow packet when processing a "closed" course.

Unexpected VCP termination no longer occurs when generating courses for a specific project file.

Support is added for offsetting the Roller component including motion linearization. The offset is automatically detected and applied. The **SetRobotXAxisMode** macro should be called in the Reset Event so that when the robot is initialized, the linear axis can be applied with its parking position.

CAM Interfaces

GibbsCAM-to-VERICUT Interface (GibbsV)

New feature, Fixture WG Override, is added to the GibbsV Main window enabling you to specify the work group geometry to be used for the fixture model instead of the default definition.

GibbsCAM coordinate system names are now retained during transfer through GibbsV to VERICUT. To avoid any possibility of duplicate names, Gibbs coordinate system names are prefixes the Gibbs name with "CSn" where "n" is 1, 2, 3, 4, etc.. For example, "CS1 Attach XZ plane", "CS2 Attach2 XZ plane", ...

The GibbsV "base" file name is now added to the front of SOR and other created model file names.

GibbsV now passes a specific GibbsCAM Lathe Boring Bar tool holder so that it displays correctly in VERICUT.

GibbsV now passes a specific GibbsCAM Lathe Boring Bar tool holder correctly to VERICUT.

A new feature, Subsystem ID, in the GibbsV main window enables specifying a Subsystem ID for each Tool Group.

GibbsV now transfers the Stock and Design models in a specific GibbsCam part file, when using Stock WG Override, and Design WG Override features, to the correct location in VERICUT.

GibbsV now transfers the correct driven point, for a specific GibbsCam turning tool, to VERICUT.

Mastercam-to-VERICUT Interface (MCAMV)

MCAMV now correctly passes SETUP NAMEs containing special characters to VERICUT.

NX-to-VERICUT Interface (NXV)

NXV no longer transfers a tapered shank tool when a shank taper value is not specified in NX.

NXV now correctly transfers the correct block size, when Blank geometry defined using the NX Bounding Block option are transferred when other models are visible and when offsets have been specified in the NX Bounding Block option.

NXV now transfers a specific tool holder in the correct position when using VERICUT 7.2.1 and NX8.5.

G-Code Processing

New macros, **SetComponentAcceleration**, **SetComponentDeceleration**, **SetComponentRapidRate**, and **SetComponentVisibility**, are added to support adjusting acceleration/deceleration values during G-Code processing.

CDC no longer fails with circle off from helical full 360 circles.

False collisions are no longer reported for a specific project file when the Animation Slider is set at 100%.

Machine Simulation

An Error message, "Tricept singularity occurred!" is output to the logger when the Tricept reaches a singular point.

Tool Manager

Row alignment in Tool Manager, Tool Search, and Variables windows are now correct when View menu > Look & Feel is set to Windows when running VERICUT on Windows Vista or Windows 7 computers.

Importing a coordinate system from a file now works correctly in stand-alone Tool Manager.

VERICUT Reviewer

The Reviewer now displays the correct Visibility condition for components that have had Visibility changed using the following VERICUT COMMANDS:

    VERICUT-COMMAND LOAD_MODEL_BY_NAME
    VERICUT-COMMAND REMOVE_MODEL_BY_NAME

The Reviewer now displays the correct Visibility condition for components that have had Visibility changed using the **SetComponentVisibility** macro.

The Reviewer now correctly displays tools and the Cut Stock gets updated when replaying the motion after the part is transferred to the sub-spindle in the Machine view.

The Reviewer now correctly displays component collisions in red.

The Start, Current, and End markers are now displayed correctly in the NC Program window when opening the Reviewer.

Reviewer now displays Tool inserts correctly in a Machine View.

New Macros in V7.2.2

The following new macros are added for V7.2.2:

SetComponentRapidRate
SetComponentAcceleration
SetComponentDeceleration
SetComponentMaxFeed

Macros not yet included in the documentation

SetComponentAcceleration

Function — MISCELLANEOUS
Status — ACTIVE
Valid Inputs — Text, Value
    Text = component name
    Value = new acceleration value

The **SetComponentAcceleration** macro is used to set the Acceleration (in units/sec*sec) for the component specified in the Override Text field. The "Acceleration" field for a component in the GUI is now the default Acceleration. The current Acceleration can be updated using this macro. At reset, the current value will be re-initialized with the default value.

NOTE: The value saved will always be the default value.

SetComponentDeceleration

Function — MISCELLANEOUS
Status — ACTIVE
Valid Inputs — Text, Value
    Text = component name
    Value = new deceleration value

The **SetComponentDeceleration** macro is used to set the Deceleration (in units/sec*sec) for the component specified in the Override Text field. The "Deceleration" field for a component in the GUI is now the default Deceleration. The current Deceleration can be updated using this macro. At reset, the current value will be re-initialized with the default value.

NOTE: The value saved will always be the default value.

SetComponentMaxFeed

Function — MISCELLANEOUS
Status — ACTIVE
Valid Inputs — Text, Value
    Text = component name
    Value = new max feed velocity

The **SetComponentMaxFeed** macro is used to set the Max Feed Velocity (in units/min) for the component specified in the Override Text field. The "Max Feed Velocity" field for a component in the GUI is now the default Max Feed Velocity. The current Max Feed Velocity can be updated using this macro. At reset, the current value will be re-initialized with the default value.

NOTE: The value saved will always be the default value.

SetComponentRapidRate

Function — MISCELLANEOUS
Status — ACTIVE
Valid Inputs — Text, Value
    Text = component name
    Value = new rapid rate

The **SetComponentRapidRate** macro is used to set the "Rapid Rate" (in units/min) for the component specified in the Override Text field. The "Rapid Rate" field for a component in the GUI is now the default Rapid Rate. The current Rapid Rate can be updated using this macro. At reset, the current value will be re-initialized with the default value.

NOTE: The value saved will always be the default value.

VERICUT 7.2.3 Interim Release

Release Notes

June 12, 2013

VERICUT Version 7.2.3 is available for all supported Windows platforms.
V 7.2.3 contains everything described above for V7.2.1, plus the following additional fixes/enhancements.

CAM Interfaces

CATIA-to-VERICUT Interface (CATV)

The CATV.CATScript no longer fails to execute when there is a space in path name.

Edgecam-to-VERICUT Interface (ECV)

Edgecam ".csv" tool files are now passed correctly through the Edgecam-to-VERICUT Interface to VERICUT.

A specific Edgecam Stock model, defined as a wire frame tube, is now passed correctly through the Edgecam-to-VERICUT Interface to VERICUT.

Specific turning Stock and Design models (Pro/Engineer solids in Granite format) now pass correctly through the Edgecam-to-VERICUT Interface to VERICUT.

The Edgecam-to-VERICUT Interface no longer creates certain tool files with a ".tls.v53" extension instead of a ".tls" extension.

Esprit-to VERICUT Interface

The Esprit-to-VERICUT Interface is enhanced to enable passing subroutines in Esprit through the interface to VERICUT.

Unexpected Esprit-to-VERICUT Interface termination no longer occurs when running the interface on a Windows 7 computer.

Unexpected Esprit-to-VERICUT Interface termination no longer occurs on a Japanese environment computer with Win7 and Microsoft Office 2010 installed.

GibbsCAM-to-VERICUT Interface (GibbsV)

New feature, Fixture WG Override, is added to the GibbsV Main window enabling you to specify the work group geometry to be used for the fixture model instead of the default definition.

GibbsCAM coordinate system names are now retained during transfer through GibbsV to VERICUT. To avoid any possibility of duplicate names, GibbsV prepends GibbsCAM coordinate system names with "CSn" where "n" is 1, 2, 3, 4, etc. For example, "CS1 Attach XZ plane", "CS2 Attach2 XZ plane", ...

The GibbsV "base" file name is now added to the front of SOR and other created model file names.

GibbsV now passes a specific GibbsCAM Lathe Boring Bar tool holder so that it displays correctly in VERICUT.

GibbsV now passes a specific GibbsCAM Lathe Boring Bar tool holder correctly to VERICUT.

A new feature, Subsystem ID, in the GibbsV main window enables specifying a Subsystem ID for each Tool Group.

GibbsV now transfers the Stock and Design models in a specific GibbsCAM part file, when using Stock WG Override, and Design WG Override features, to the correct location in VERICUT.

GibbsV now transfers the correct driven point, for a specific GibbsCAM turning tool, to VERICUT.

GibbsV now transfers the correct driven point, for a specific GibbsCAM turning tool, to VERICUT.

GibbsV now processes correctly when folder names contain the following small letters of the Russian alphabet: х, ц, ч,ш,щ,ъ,ы,ь,э,ю,я and when the name of the folder contains more than 8 Russian letters.

GibbsV is enhanced to enable seeing the file name when there is a long directory path.

GibbsV is enhanced to enable specifying the path to separate folder for posted G-Code.

GibbsV no longer automatically outputs STL files to the previously saved directory path enabling the directory path to be changed.

The GibbsV "Use Comment as Tool ID" feature now correctly sets the VERICUT "Tool Change By" feature to Tool Number.

GibbsV now exports Fixture and Stock models in the correct position when the Fixture and Stock models have the same names.

GibbsV now passes turning tool inserts to VERICUT in the correct position.

GibbsV now automatically sets the Main Spindle XY plane when outputting solid tools so that the tools are in the correct orientation when passed to VERICUT.

GibbsV no longer passes incorrect Design models to VERICUT.

GibbsV now creates the CSYS for the G-Code Offsets in the correct position.

GibbsV now passes Tap tools to VERICUT with the correct Minor Diameter.

Mastercam-to-VERICUT Interface (MCAMV)

MCAMV now correctly passes SETUP NAMEs containing special characters to VERICUT.

MCAMV now creates all programmed tools for a Mirrored Toolpath Group.

MCAMV Custom Tool Profiles now correctly found and used.

MCAMV NC Program and Subroutine extensions are now saved in the MCAMV Preferences file. If a file with a new extension is selected, the current extensions list is updated, and is stored in the MCAMV Preferences file upon selecting OK or Apply.

Unexpected MCAMV termination no longer occurs when the Add button is selected and there are no program groups.

MCAMV now correctly updates the File Name field when a different Mastercam part file is opened.

NX-to-VERICUT Interface (NXV)

NXV no longer transfers a tapered shank tool when a shank taper value is not specified in NX.

NXV now correctly transfers the correct block size, when Blank geometry defined using the NX Bounding Block option are transferred when other models are visible and when offsets have been specified in the NX Bounding Block option.

NXV now transfers a specific tool holder in the correct position when using VERICUT 7.2.1 and NX8.5.

NXV no longer causes unexpected NX8 termination when running a specific NX7.5 part file.

All NX8 tool types with "Shank" are now correctly passed through NXV to VERICUT.

Tools that use a Degree symbol in the tool description are now successfully passed through NXV to VERICUT.

The NC Program that is selected for a 2nd operation is now maintained after you close the NXV menu and then re-open it.

NXV now correctly passes Program Zero Table values to VERICUT.

Unexpected NXV termination no longer occurs on 32 bit computers when an NC program is removed from the list.

5-parameter milling cutters with a negative taper angle are now correctly passed through NXV to VERICUT.

NXV no longer supports NX5.

Pro/E-to-VERICUT Interface (PROEV)

PROEV now works with Creo 2.0.

PROEV correctly passes tool information from Creo 2.0 to VERICUT.

PROEV now correctly creates the tools and the tool list from Creo 2.0 tool data and passes them to VERICUT.

Multiple models/assemblies can now be picked in PROEV using the <Shift> key. When the selection process is complete, press the OK button in the Select window, or Cancel button to ignore current selections.

PROEV now correctly passes gage lengths when they are set to 0 in Pro/E.

PROEV now passes turning tools to VERICUT in the correct orientation.

PROEV now passes all tools in a specific Pro/E manufacturing file to VERICUT.

PROEV now correctly passes a turning insert in a specific Pro/E manufacturing file to VERICUT.

PROEV now passes all tools in a specific Creo 2.0 manufacturing file to VERICUT.

PROEV no longer creates an empty tool library file from the tool data in a specific Creo 2.0 manufacturing file in VERICUT.

The option of using a Russian language file is added to PROEV.

PROEV uses a new method to determine the location of a tool's gage point and orientation as described below.

    1) If the SPINDLE_CONTROL_POINT is defined, then the orientation and gauge point is derived from the SPINDLE_CONTROL_POINT. Any GAUGE_X_LENGTH, GAUGE_Y_LENGTH or GAUGE_Z_LENGTH defined will override the gage point derived from SPINDLE_CONTROL_POINT.

    2) If the TOOL_ATTACH_POINT is defined, then the orientation and gauge point is derived from the TOOL_ATTACH_POINT. Any GAUGE_X_LENGTH, GAUGE_Y_LENGTH or GAUGE_Z_LENGTH defined will override the gage point derived from the TOOL_ATTACH_POINT.

    3) If the GAUGE_X_LENGTH or GAUGE_Y_LENGTH or GAUGE_Z_LENGTH is defined, then the gage point is derived from the GAUGE_X_LENGTH and GAUGE_Y_LENGTH and GAUGE_Z_LENGTH.

    4) For all other situations the gage point is set to the tool LENGTH.

AUTO-DIFF

AUTO-DIFF now works correctly in batch mode using Batch Wizard and "batchp".

CAD Model Interface

The CATPart reader now correctly interprets the visibility of CATIA models.

G-Code Processing

New macros, **SetComponentAcceleration**, **SetComponentDeceleration**, **SetComponentRapidRate**, and **SetComponentMaxFeed**, are added to support adjusting acceleration/deceleration values during G-Code processing.

CDC no longer fails with circle off from helical full 360 circles.

False collisions are no longer reported for a specific project file when the Animation Slider is set at 100%.

Drilling cycles in the library osp_p200m control are now correct.

The display of Axis Variables now matches Axis Mapping for Siemens 840d controls. New macro, **SetAxisVariableNames**, is added to support axis variables.

The library Siemens 840d control is enhanced to better support TRAORI. New option "PARTFRAME" is added to the **SiemensSystemFramesCancel** and **SiemensSystemFramesRestore** macros to support the 840d TRAORI enhancements. This option deactivates/activates $P_PARTFRAME from the chain of translations while $P_WPFRAME still is active.

Siemens 840D axis mapping now processes correctly when using XYZ A1A2A3 axes.

CYCLE800 now works correctly for a specific project file where there is a "_A=180" and "_B=90" programed.

Siemens 840D control and subroutines now restore frames correctly when PAROT is active. New optional parameter "DWO" is added to the **SiemensTRWorkCoordinate** macro to apply the work Offset with the **DynamicWorkOffsets** macro active.

The Siemens probing CYCLE979 now processes correctly when used in a specific project file.

New macro, **CycleTurnGrooveDrivenPoint**, is added to support the Okuma "Longitudinal groove fixed cycle" G73.

New macro, **AutosetTableAxisVarsAdv**, is added to handle Registers and SubRegisters.

The Siemens CYCLE84 now processes correctly when used in a specific project file. New optional parameter "DWO" is added to the **SiemensTRWorkCoordinate** macro to apply the work Offset with the **DynamicWorkOffsets** macro active.

The output of "Problem parsing current line starting at text: ..." error messages are now suppressed by default. The "parsing" error messages can be turned on using the enhanced **TurnOnOffMessage** macro with Override Value=1 and Override Text=GenParseError in the Start of Processing event.

Macro **SiemensCompToVcAxisMapping** is enhanced to automatically create the corresponding Words in the Word/Format window.

Conditionals, **HeidCondLeftParen** and **HeidCondRightParen** are enhanced to look for the last non-white space character instead of the last character that could be a blank space and cause problems.

The library Siemens 840d control now correctly differentiates between upper and lower case when processing a Siemens MIWRITE: engraving cycle. New macro, **StringMatchCase**, is added to specify whether to match or ignore case. The default is ignore (Override Value = 0). To match case, use Override value = 1 when comparing strings.

Debug Variables on the Output Options window, Debug tab is enhanced to include variables referenced by "*Macroname*" Override Value.

The **Heid_EndSub** macro is enhanced such that when an "END PGM" is encountered, VERICUT now keeps returning from subroutines until it gets to a subroutine that is different than the current. In other words, VERICUT returns from all subroutines that are active in the program, and then returns from the program.

VERICUT no longer reports false "undefined word" errors for subroutine calls.

The conditional **OsaiCondEqualWord** now interprets the '=' as a logic test as it should when it follows the strings "GTO", "IF", "EPB" or "WOS".

New conditionals, **PlasmaCondLParenWord** and **PlasmaCondRParenWord**, are added to support the "If" statement for a Mandelli machine with a Plasma control where a "(" is not a "start of comment" and a ")" is not an "end of comment".

PlasmaCondLParenWord

This conditional determines whether or not '(' starts a comment. If the '(' is nested within angle brackets '<' and '>' then it will be interpreted as "Left Precedence", otherwise it will be interpreted as "Begin Comment".

PlasmaCondRParenWord

This conditional determines whether or not ')' ends a comment. If the ')' is nested within angle brackets '<' and '>' then it will be interpreted as "Right Precedence", otherwise it will be interpreted as "End Comment".

The VERICUT session no longer "hangs" when it reaches the "END PGM" at the end of the main program.

The VERICUT session no longer "hangs" when processing probing tools in turning mode.

Siemens 840d "$P_PARTFRAME" is now separated so that it can be deactivated with macro **SiemensSystemFramesCancel** using Override Text=PARTFRAME or activated with macro **SiemensSystemFramesRestore** using Override Text=PARTFRAME.

Tangential approach and Tangential exit motions are now correct when cutter diameter compensation active and the Tangential approach and Tangential exit motions are parallel.

False "Spindle direction" and "holder collision" errors are no longer produced for a specific project file.

The VERICUT session no longer "hangs" while processing a Cycle208 subroutine with macro **CutterCompFull** active.

A new check is added to determine the potential problem predicting the behavior of simple circular (G2/G3) motion on Fanuc CNC's resulting from a difference between Fanuc's old arc method (FS15) and its newer method (FS16). This only applies to Fanuc CNC's and for motion along very short arc segments. By default, this check is turned on and VERICUT will output a Warning if it determines that the two Fanuc Arc methods produce a different solution for the motion along the arc. New macro, **FanucArcLengthWarning**, enables you to turn off this check.

Using macro **CutterCompFull** in a specific project file no longer generates bad motions when run on a 64 bit computer.

New macro**, CycleMillPocketAbsDepth**, is added to support milling a pocket to an absolute depth, such as Haas G12 and G13. **CycleMillPocketAbsDepth** sets the absolute depth for the pocket based on active program zero.

Using the macro **CutterCompFull** with Override Value = 1 in a specific project file now produces the correct motions.

Macros **BlockSkipSwitch1**, **BlockSkipSwitchOff**, and **BlockSkipSwitchOn**, have all been modified to be called during the SCAN pass.

Macros **Heid_PolarRadius** and **Heid_PolarAngle** now process cycle motion correctly. Macro **CyclesExecuteModal** is enhanced to handle Polar Coordinate input.

Macro **CutterCompFull** with Override Value = 1 now generates the correct motion for a specific project file.

The macro **Heid_PolarIncAngle** now produces the same results as on Heidenhain control on the machine.

The Siemens CYCLE97 now processes correctly for a specific project file using a facing head tool.

The Siemens CYCLE800 now correctly adopts the angles set in the Work Offset for a specific project file.

The library hei530 control is enhanced to enable using the Heidenhain TCPM function.

New option, "CurToolVector", is added to the **SetDynamicVars** macro. The key word is followed by a triplet of NC variables where the current tool vector's I, J, and K values will be stored. The vector is defined in the stock Csys, the same as it is shown in Status window. An example for a Siemens 840D control it is:

Override Text=CurToolVector $P_TOOLO[0] $P_TOOLO[1] $P_TOOLO[2].

The library Heidenhain 530 control is enhanced to support CYCL DEF 240 Centering.

Tapping error messages have been enhanced to make them clearer as to what the problem is.

VERICUT project files now open correctly when CGTECH_OLD_FSB=Yes to use the old VERICUT file selection box.

A Stock sweep file that has the **Zmin/Zmax** values reversed no longer causes VERICUT not to process. As long as there is a difference in the two values, VERICUT will still calculate the thickness.

The status of the **No Animation** check box no longer affects processing time in Batch mode.

The G-Code Processing window has been enhanced to support shortcuts Ctrl+X, Ctrl+C and Ctrl+V for Cut, Copy and Paste.

False "Fast Feed removed material ..." errors are no longer output for a specific tool assembly in a specific project file.

The Tool Holder is no longer displayed red in a Profile view.

Unexpected VERICUT termination no longer occurs when a saved In-Process file is opened via the Project Tree.

Two new functions, OperatorValueInput and OperatorTextInput are added to enable customizing the text in the pop up window when using the NumInput function with the condition NumCondDollarSignWord. They can be used as follows:

#1 = VALUE_INPUT("Enter X Value")
NAME = TEXT_VALUE("Enter your Name")

VALUE_INPUT is then defined as a Word of type function which calls OperatorValueInput

TEXT_INPUT is then defined as a Word of type function which calls OperatorTextInput

A new function, TEXT_INPUT, is added to get a text string from a popup menu enabling the use of text strings with condition "NumCondDollarSignWord". It can be used as follows:

NAME = TEXT_INPUT("Input your Name").

TEXT_INPUT is then defined as a Word of type function which calls OperatorTextInput

In the Project Tree, Cut Stock is now updated when it transfers from Setup#1 to Setup#2.

When the **Auto-set working directory to the current project folder option** is set in the Preferences window, it now also sets the working directory used in the Save Project As window (**File menu > Save As)**.

VERICUT will now prompt you to save the Machine file after adding or modifying Machine Notes, before opening another project.

The **AlternateTool** macro now works correctly for STL and VERICUT insert cutters.

The **ToolRetract** macro has been enhanced so that if a text value of "NOLIMIT" is passed, the tool will retract the specified distance. If the retract motion causes the machine to exceed its travel limits, an error message: "...Component "*comp*" exceeded maximum limit..." will be output just like on the actual machine.

Machine Simulation

An Error message, "Tricept singularity occurred!" is output to the logger when the Tricept reaches a singular point.

Using the "Undo" button in the Project Tree no longer breaks the linkage of Link Components.

A Tricept's kinematic no longer changes orientation when activating a Tool shift along the X-axis.

The motion is now consistent when using macro Ijk2AbcType with Override Value 18 and with the new Override Value 34 when used with tool Tricepts and multi-tools.

Constant Gouge Check is enhanced to work correctly with broaching and gear hobbing motions.

A problem causing a facing head tool to sometimes be displayed in the wrong position in a Workpiece view is corrected.

Tricept Ijk2AbcType 29 now produces the correct machine motion.

Miscellaneous

Support for DEF 252 is added to the library TNC 426 and 530 controls.

Support is added to the library Heidenhain 530 control to ignore the cycle if Q201 (Depth) = 0.

Support is added for FI, FU and RO to provide the same function as FIX, FUP and ROUND for the fan18im.ctl family.

The library hei530 control is enhanced to include conditional TOOL with all DEF integer words.

Stand-alone Tool Manager (toolman.bat) now works correctly with a VERICUT Limited license.

A problem with CME API function "cmeapi_set_var()" is fixed.

Unexpected VERICUT termination no longer occurs when processing a specific OptiPath API custom optimization program on a 32 bit Windows 7 computer.

OptiPath

OptiPath no longer adds duplicate XYZ positions to the optimized NC program for a specific project file using Siemens 840d axis mapping.

The ability to define the words used for the Axes in OptiPath is added.

Calculated OptiPath Time is now correct when (VERICUT-OPTIPATH OFF) comments are used in the NC program to suspend optimization.

The VERICUT session no longer freezes after using Interactive OptiPath when there is another setup after the one where the OptiPath Interactive window was opened.

OptiPath now retains the original motion values (e.g. XYZIJKABC etc.) present on input blocks unless the block optimization modifies the block to have a new feed rate, spindle speed, or motion breakup.

Drill tools marked "OK to Mill" are now optimizable.

VERICUT no longer turns off Machine Collision checking after a reset following an OptiPath Interactive optimization.

OptiPath now outputs the same circle format in the optimized NC program that was used in the original NC program.

The default Air Cut Feed Rate can now be altered in Interactive OptiPath.

Tool Manager

Row alignment in Tool Manager, Tool Search, and Variables windows are now correct when View menu > Look & Feel is set to Windows when running VERICUT on Windows Vista or Windows 7 computers.

Importing a coordinate system from a file now works correctly in stand-alone Tool Manager.

A "referenced" probe tool, in a specific project file, now works correctly after the probe has been translated.

A new **Tool Type** field is added to the Search Tool window.

The Tool Library file locking feature is now correctly enabled after a very specific sequence of actions.

VERICUT Drill and Fastener

VDAF AUTO-DIFF no longer reports all points as mismatched in a specific project file.

VDAF AUTO-DIFF is enhanced so that when selecting "mismatched" locations from the AUTO-DIFF list, the locations are brought to the center of the graphics display.

After right clicking on "Design Locations" in the Project Tree to display the **Visible** option, the icon to the left of **Visible** now displays the correct visibility status.

VDAF is enhanced so that the Fastener Models list in the Project Tree now defaults to a collapsed state.

Unexpected VDAF Programming termination no longer occurs when trying to edit the Retract Points' parent component on the Sequencing tab.

VERICUT Reviewer

The Reviewer now displays the correct Visibility condition for components that have had Visibility changed using the following VERICUT COMMANDS:

    VERICUT-COMMAND LOAD_MODEL_BY_NAME
    VERICUT-COMMAND REMOVE_MODEL_BY_NAME

The Reviewer now displays the correct Visibility condition for components that have had Visibility changed using the **SetComponentVisibility** macro.

The Reviewer now correctly displays tools and the Cut Stock gets updated when replaying the motion after the part is transferred to the sub-spindle in the Machine view.

The Reviewer now correctly displays component collisions in red.

The Start, Current, and End markers are now displayed correctly in the NC Program window when opened in the Reviewer.

Reviewer now displays Tool inserts correctly in a Machine View.

Verification

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

When processing a specific project file, the tool position in the Workpiece view and the tool position in a Machine/Cut Stock view are now consistent.

Copy files no longer automatically overwrites models having same names, but from different setups. A message is now displayed asking the user whether or not to overwrite the model.

Using Copy/Paste with a setup that has multiple NC programs no longer causes first setup to be re-run.

Space pilot and refine display performance is improved.

The spinning display for a specific insert cutter is now correct for a specific In-Process file.

Probe Programming Approach points now have correct X values.

A tool T0 in Tool Manager no longer causes the tool to be loaded by default when Reset is used.

VERICUT is enhanced to prevent an In-Process file from being saved before the simulation has started.

Tools are now positioned correctly in the tool chain in a specific project file when using Tool Change by List or Tool Change by Pocket Number.

An empty notice dialog no longer pops-up, preventing any input in VERICUT's desktop after dragging with left mouse button to rotate the view while the project file is simulating.

The Logfile now correctly displays information about modified tools in the Tool Summary after using Calculate Min. Cutter Extension in a specific project file.

The motion for G2 spiral milling is now correct for a specific project file.

Unexpected VERICUT termination no longer occurs when trying to save a Review file while using a virtual TDM Tool List.

The Optional Tool Assignment List now works correctly with tool IDs such as 5E.

Report Tool Summary Table, View Capture images are no longer missing when tool changes are made via subroutine.

The graphics display for a specific project file is now correct.

VERICUT now enables you to choose whether or not re-using the same tool should be seen as a distinct tool entry in the Tool Summary by using the macros: **ToolChange** and **ToolChangeIfDifferent**.

A specific profile (SOR) cutter now removes material correctly when used for 5-axis motion with very small tool axis changes.

The File Summary window (Info menu > File Summary) is enhanced to export a referenced Tool Component model from a referenced tool library. For example, the tool library references a master tool library which references a holder model.

Following a cut off operation on a Twin Spindle Okuma Mill-turn machine, the Stock now remains visible after the sub-spindle retracts.

The Machine Offsets in a specific project file are now correctly applied.

A new environment variable, CGTECH_IGNORE_MIRROR_CHECK, is added to enable mirroring to behave as it did prior to V7.2.

If CGTECH_IGNORE_MIRROR_CHECK= TRUE, then the mirror restriction check will be ignored and mirroring will behave as it did prior to V7.2.

If CGTECH_IGNORE_MIRROR_CHECK=FALSE, then the mirror restriction check will be done.

Material is now correctly removed for a specific project using Broach mode.

VERICUT now creates a good STL model for a specific project file.

New Macros in V7.2.3

The following new macros are added for V7.2.3:

CycleMillPocketAbsDepth
CycleTurnGrooveDrivenPoint
FanucArcLengthWarning
MountCompName
MountToCompName
OptiXWord
OptiYWord
OptiZWord
RotaryDirShortestDist2
SetComponentAcceleration
SetComponentDeceleration
SetComponentMaxFeed
SetComponentRapidRate
SetRobotInputVecOrder
SetRobotAngleHead
SiemensWPPartSide
StringMatchCase
TapeMarkerOnOff
TapePrinterSettings
TapePrinterString
TapeTowsDecimal
UnMountComp
WorkingPlaneDWO

Macros not yet included in the documentation

CycleMillPocketAbsDepth

Function — POCKET CYCLES
Status — ACTIVE
Valid Inputs — Value

Sets the absolute depth for the pocket based on the active Program Zero.

CycleTurnGrooveDrivenPoint

Function — TURNING CYCLES
Status — ACTIVE
Valid Inputs — Value

Groove driven point used at target position.

FanucArcLengthWarning

Function —Miscellaneous
Status — ACTIVE
Valid Inputs — Value

> 0 = disable
> 1 = enable (Default)

This macro enables comparing two different Fanuc arc length solutions (one implemented in the older FS15 and the other in the newer FS16 CNC systems). When enabled, the resulting arc motion produced by the commanded arc's start and end locations are compared between the two different Fanuc methods. If the two methods determine different solutions (one chooses long arc, the other chooses short arc) then the following warning message is sent to the logger:

> "Warning: Arc start and end points may produce undesirable motion on Fanuc controls, at line …"

This does not apply to circle motions where the start and end points are coincident and produce a full 360 degree motion.

MountCompName

Function — MISCELLANEOUS
Status — ACTIVE
Valid Inputs — Text
   Text = component name

Used with the **MountToCompName** macro to dynamically connect two components within the component tree. Use the **MountCompName** macro to specify the component to be connected.

Everything under the component in the component tree goes with it.

MountToCompName

Function — MISCELLANEOUS
Status — ACTIVE
Valid Inputs — Text

   Text = component name

Connects the component specified with the **MountCompName** macro to the component specified by the **MountToCompName** macro. It can be any type of component. Everything under the "**MountCompName**" component in the component tree comes with it.

NOTE: The difference between **MountCompName** / **MountToCompName** macros and the **ConnectCompName** / **ConnectToCompName** is that the "Mount" component macros do not require the components to be moved so that they are tangent at the point the connection is made. The "Mount" macros will just pop the components into place. This is done by maintaining the relative position of the "Mount" component with its parent component when connecting.

Example:

To have "M10" connect a component named "Stock" to a "U" axis component, use the Configuration menu > Word/Address function to define 2 groups as follows:

   Word=M Range=10, Macroname=**ConnectCompName**, Override Text=Stock
   Word=M Range=10, Macroname=**ConnectToCompName**, Override Text=U

For more information, see Word Address window, in the VERICUT Help section, in the CGTech Help Library.

OptiXWord

Function — OPTIPATH
Status — ACTIVE
Valid Inputs — Text

When optimizing a file, you have the option to **"Add More Cuts"**. If this option is turned off, OptiPath is typically just adjusting the Feedrate. But when this option is turned on, OptiPath will now need to format a line, which includes outputting X, Y, and Z values. Typically, the output line might look like:

“N50 X11 Y22 Z33 F27"

The default X word is "X". This macro enables you to specify a different X word to be used.

For example if "X1=" is specified, the above string would become:

“N50 X1=11 Y22 Z33 F27”

OptiYWord

Function — OPTIPATH
Status — ACTIVE
Valid Inputs — Text

When optimizing a file, you have the option to **"Add More Cuts"**. If this option is turned off, OptiPath is typically just adjusting the Feedrate. But when this option is turned on, OptiPath will now need to format a line, which includes outputting X, Y, and Z values. Typically, the output line might look like:

“N50 X11 Y22 Z33 F27"

The default Y word is "Y". This macro enables you to specify a different Y word to be used.

For example if "Y1=" is specified, the above string would become:

“N50 X11 Y1=22 Z33 F27”

OptiZWord

Function — OPTIPATH
Status — ACTIVE
Valid Inputs — Text

When optimizing a file, you have the option to **"Add More Cuts"**. If this option is turned off, OptiPath is typically just adjusting the Feedrate. But when this option is turned on, OptiPath will now need to format a line, which includes outputting X, Y, and Z values. Typically, the output line might look like:

"N50 X11 Y22 Z33 F27"

The default Z word is "Z". This macro enables you to specify a different Z word to be used.

For example if "Z1=" is specified, the above string would become:

"N50 X11 Y22 Z1=33 F27"

RotaryDirShortestDist2

Function — MOTION
Status — ACTIVE
Valid Inputs — Text

Possible options are:

AAXIS
BAXIS
CAXIS
A2AXIS
B2AXIS
C2AXIS

This macro sets the direction for an EIA (360 Absolute) rotary table to be the direction which is the shortest distance from the current position. If the move is exactly 180 degrees, then the starting and ending angles are converted into an angle between 0-360. If the new angle is bigger, it moves one way (CW as seen look down the motion axis, assuming the rotary is on the part side), and if the new angle is smaller, it moves the other way.

By default, the affect applies to all rotary axes. Individual rotary axes can be controlled via entering the axis name in the Override Text field, e.g.: "AAXIS", "BAXIS", "CAXIS", "A2AXIS", "B2AXIS", "C2AXIS".

Also see: **RotaryDirShortestDist180CCW** and **RotaryDirShortestDist180CW**

SetComponentAcceleration

Function — MISCELLANEOUS
Status — ACTIVE
Valid Inputs — Text, Value
        Text = component name
        Value = new acceleration value

The **SetComponentAcceleration** macro is used to set the Acceleration (in units/sec*sec) for the component specified in the Override Text field. The "Acceleration" field for a component in the GUI is now the default Acceleration. The current Acceleration can be updated using this macro. At reset, the current value will be re-initialized with the default value.

The value saved will always be the default value.

SetComponentDeceleration

Function — MISCELLANEOUS
Status — ACTIVE
Valid Inputs — Text, Value
    Text = component name
    Value = new deceleration value

The **SetComponentDeceleration** macro is used to set the Deceleration (in units/sec*sec) for the component specified in the Override Text field. The "Deceleration" field for a component in the GUI is now the default Deceleration. The current Deceleration can be updated using this macro. At reset, the current value will be re-initialized with the default value.

The value saved will always be the default value.

SetComponentMaxFeed

Function — MISCELLANEOUS
Status — ACTIVE
Valid Inputs — Text, Value
    Text = component name
    Value = new max feed velocity

The **SetComponentMaxFeed** macro is used to set the Max Feed Velocity (in units/min) for the component specified in the Override Text field. The "Max Feed Velocity" field for a component in the GUI is now the default Max Feed Velocity. The current Max Feed Velocity can be updated using this macro. At reset, the current value will be re-initialized with the default value.

The value saved will always be the default value.

SetComponentRapidRate

Function — MISCELLANEOUS
Status — ACTIVE
Valid Inputs — Text, Value
    Text = component name
    Value = new rapid rate

The **SetComponentRapidRate** macro is used to set the "Rapid Rate" (in units/min) for the component specified in the Override Text field. The "Rapid Rate" field for a

component in the GUI is now the default Rapid Rate. The current Rapid Rate can be updated using this macro. At reset, the current value will be re-initialized with the default value.

NOTE: The value saved will always be the default value.

SetRobotInputVecOrder

Function — MISCELLANEOUS
Status — ACTIVE
Valid Inputs — Text

This macro is used to define which axes of the input virtual matrix are used to drive the robot head. When the robot head/tool is a tape roller, water jet bracket or similar end effector where the orientation of the tool is programmed, the NC program contains virtual angles ABC. The ABC angles represent Euler angles or RPY angles and the corresponding matrix is calculated. For details see macro **SetRobotInputType**.

The matrix XYZ vectors can be applied differently. When the input type is XYZ_ABC or XYZ_CBA the used vector is Z (tool vector) and the XY are ignored. With input type XYZ_ABC_DIR or XYZ_CBA_DIR two vectors from matrix are used and this macro assigns vectors to its destination. The Override Text string contains 3 words in the order of ZYX so the first word is associated with Z vector of matrix and the last with X vector. Valid words are TLVEC, DIRVEC and IGNORE.

For example Override Text=TLVEC IGNORE DIRVEC is used in VCS with a tape roller programmed by VCP. This is the default order.

For a water jet head with an angle tool the Override Text=DIRVEC IGNORE TLVEC. It specifies that the Z vector is the tool direction and X is tool vector.

SetRobotAngleHead

Function — MISCELLANEOUS
Status — OBSOLETE

This macro should no longer be used.

SiemensWPPartSide

Function —
Status — ACTIVE
Valid Inputs — Value

    0 = Off (Default)
    1 = On (the Part Side)

This macro is used to resolve the direction of table rotation in the Working Plane logic for a very specific circumstance, when the tool vector is perpendicular to the table. In this case the Working Plane logic uses the direction of the X or Y axis to orient the table but

on some machines the Siemens 840D control needs additional confirmation that part is on the table and the direction should be reversed relative to the tool. The use of this macro does not affect the regular Ijk2Abc logic.

StringMatchCase

Function — MISCELLANEOUS
Status — ACTIVE
Valid Inputs — Value

> 0 = String compare without letter case consideration (Default)
> 1 = String compare with letter case consideration

This macro is used to set the condition for string compare operations. When Override Value = 0 the string compare operations (Equal or Not Equal) are done regardless letter case (ABc is equal abC). This is the default condition. With Override Value = 1 strings must match exactly using letter case. This macro is necessary for Siemens 840D string operations used in some cycles.

TapeMarkerOnOff

Function — TAPE LAYING
Status — ACTIVE
Valid Inputs — Value

> 0 = Off
> 1 = On

This macro turns the tape marker feature On and Off.

TapePrinterSettings

Function — TAPE LAYING
Status — ACTIVE
Valid Inputs — Value

This macro is used to input printer character size and spacing.

Input Format:

> Value = *N1 N2 N3*

>> where *N1 N2 N3* are defined as follows:

>>> *N1* is the height of the character drawn by the printer
>>> *N2* is the ratio of width/height
>>> N3 is the spacing between each character

Example:

> value = 0.5 0.4 0.2

TapePrinterString

Function — TAPE LAYING
Status — ACTIVE
Valid Inputs — Text

This macro is used to specify the text that the printer will draw on the next motion. The printer will write along its motion as the X-axis.

TapeTowsDecimal

Function — TAPE LAYING
Status — ACTIVE
Valid Inputs — Value

This macro is passed a decimal number representing which tows are currently on.

For example: decimal 20 = binary 10100.   This means that tows 5 and 3 are currently turned on.

UnMountComp

Function — MISCELLANEOUS
Status — ACTIVE
Valid Inputs — None

Unmounts the last component that was mounted with the **MountToCompName** macro, and returns it to where it was originally stored.

When the **MountCompName** macro was called, it stored the name of the original parent component. This macro then calls the **MountToCompName** macro using the name saved when the **MountCompName** macro was last called.

See **MountToCompName** for more details.

WorkingPlaneDWO

Function — ROTATION PLANE
Status — ACTIVE
Valid Inputs — Text, Value

Text = names of the variables

Values

0 = Rotation Plane Angles and offsets

1 = X and Z Vectors.

This macro is identical to the **WorkingPlane** macro except that it also updates the work offsets as if the Dynamic Work Offsets (DWO) are turned on, and the part had already been rotated to the new calculated location.

This macro is created specifically for the Heidenhain control, but may be useful for other controls.

This macro converts the "working plane" into real A, B, and C angles that apply to the current machine, and establishes a working plane matrix if necessary. The resulting angles are then stored in the specified variables. The text value passed to this macro contains the names of the variables, typically for Heidenhain, this will be set to "120 121 122".

The input value defines how the working plane" was defined.

This macro makes use of the **WorkingPlane2AbcType** macro.

Valid Override Values (input types):

Override Value = 0 Rotation Plane Angles and offsets.

These values are set with the following macros:

RotationPlaneAngle1
RotationPlaneAngle2
RotationPlaneAngle3
RotationPlaneIncAngle1
RotationPlaneIncAngle2
RotationPlaneIncAngle3
RotationPlaneXPoint
RotationPlaneYPoint
RotationPlaneZPoint
RotationPlaneIncXPoint
RotationPlaneIncYPoint
RotationPlaneIncZPoint

Override Value = 1 X and Z Vectors.

These vectors are set with the following macros:

PlaneAxisVectorX
PlaneAxisVectorY
PlaneAxisVectorZ