

Saber® Release Notes for Version Y-2006.06-SP2

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These release notes present the latest information about Saber Version Y-2006.06-SP2 in the following sections:

- [New Features, Enhancements, and Changes in Y-2006.06-SP2](#)
- [Resolved STARs in Y-2006.06-SP2](#)

This document also contains the following release notes:

- [Saber® Release Notes for Version Y-2006.06-SP1](#)
- [Saber® Release Notes for Version Y-2006.06](#)
- [CosmosScope Release Notes for Version Y-2006.06](#)
- [CosmosScope Release Notes for Version X-2006.03](#)

New Features, Enhancements, and Changes in Y-2006.06-SP2

Version Y-2006.06-SP2 provides new features, enhancements, and changes as described in the following sections:

- [Saber Harness Design Update](#)
- [Behavioral Change to Variants in Saber Harness \(STAR 9000099645\)](#)
- [MAST Template Encryption Utility](#)
- [Thermal Impedance Tool Enhancements \(STAR 9000003211\)](#)
- [Battery Tool Enhancements \(STAR 9000142958\)](#)
- [Updates to Co-Simulations, Frameway Integrations and Interfaces](#)
- [New Models](#)
- [New Component Models](#)
- [Dynamic Thermal Alternator with Charging System Loads and Battery Example \(STAR 9000132326\)](#)
- [Saber Quick Start Enhancements](#)

Saber Harness Design Update

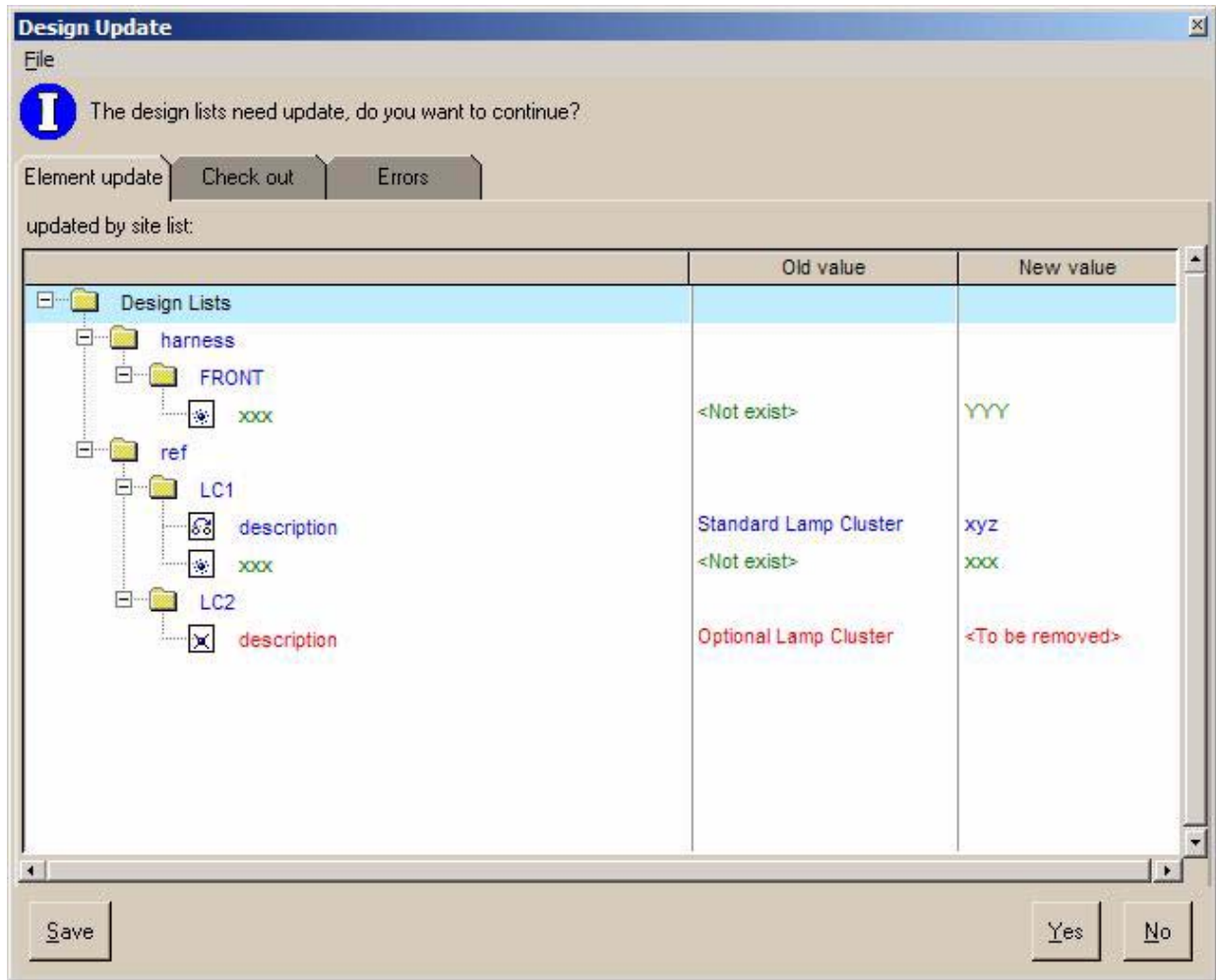
The purpose of Design Update is to make the data in a design consistent with the data in the source databases. Previously, updates to the database were not propagated to the designs that used those elements.

Understanding the Design Update Process

To update a design, you choose the properties for which you want the latest information: Ref, Cable, Passive, Shell and Wire properties. If you use CVC, you must have at least one sheet checked out.

The design is searched for elements that need updating. You are first presented with a preview of the lists that need updating, as shown in [Figure 1 on page 3](#).

Figure 1 Design List Preview



After you update the lists, you are presented with a preview of all the possible changes to the design, as shown in [Figure 2 on page 4](#).

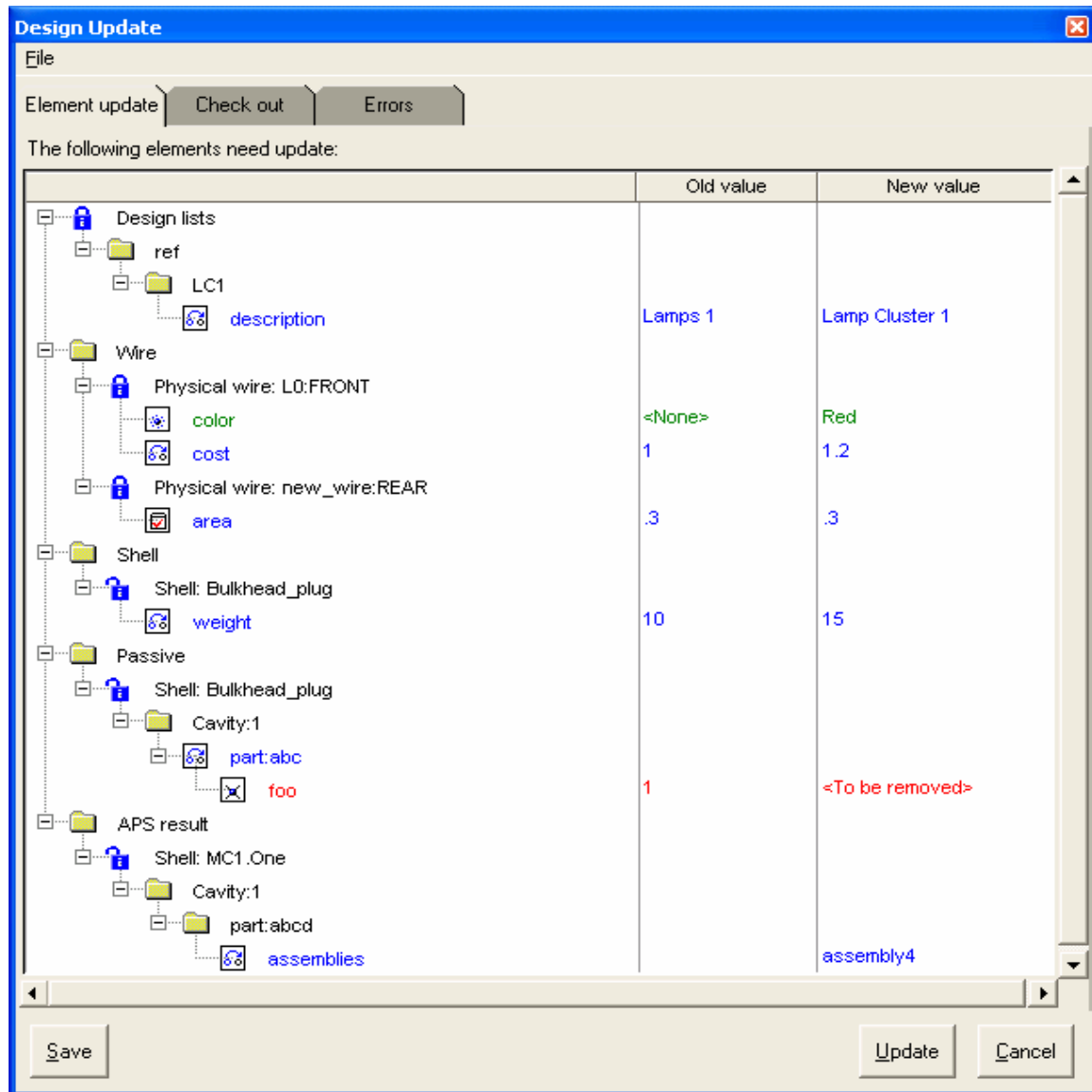
Properties that need updating are listed in the Element Update tab. The old value, if there was one, is listed and the new value, if there will be one, is listed next to the property. In the example shown in Figure 2, the proposed changes are as follows:

- L0:Front wire will get a new color property with a value of Red and the cost property will be changed from 1 to 1.2.
- The area property for new_wire:REAR will change the value editor to Wire, but the value will not change.
- The value of the weight property for the Bulkhead_plug shell will change from 10 to 15.

- The foo property for the abc part assigned on cavity 1 of the Bulkhead_plug shell will be removed.
- APS (automatic part selection) was run and the assemblies property for the abcd part at shell MC1:One, cavity 1 was added with a value of assembly4.

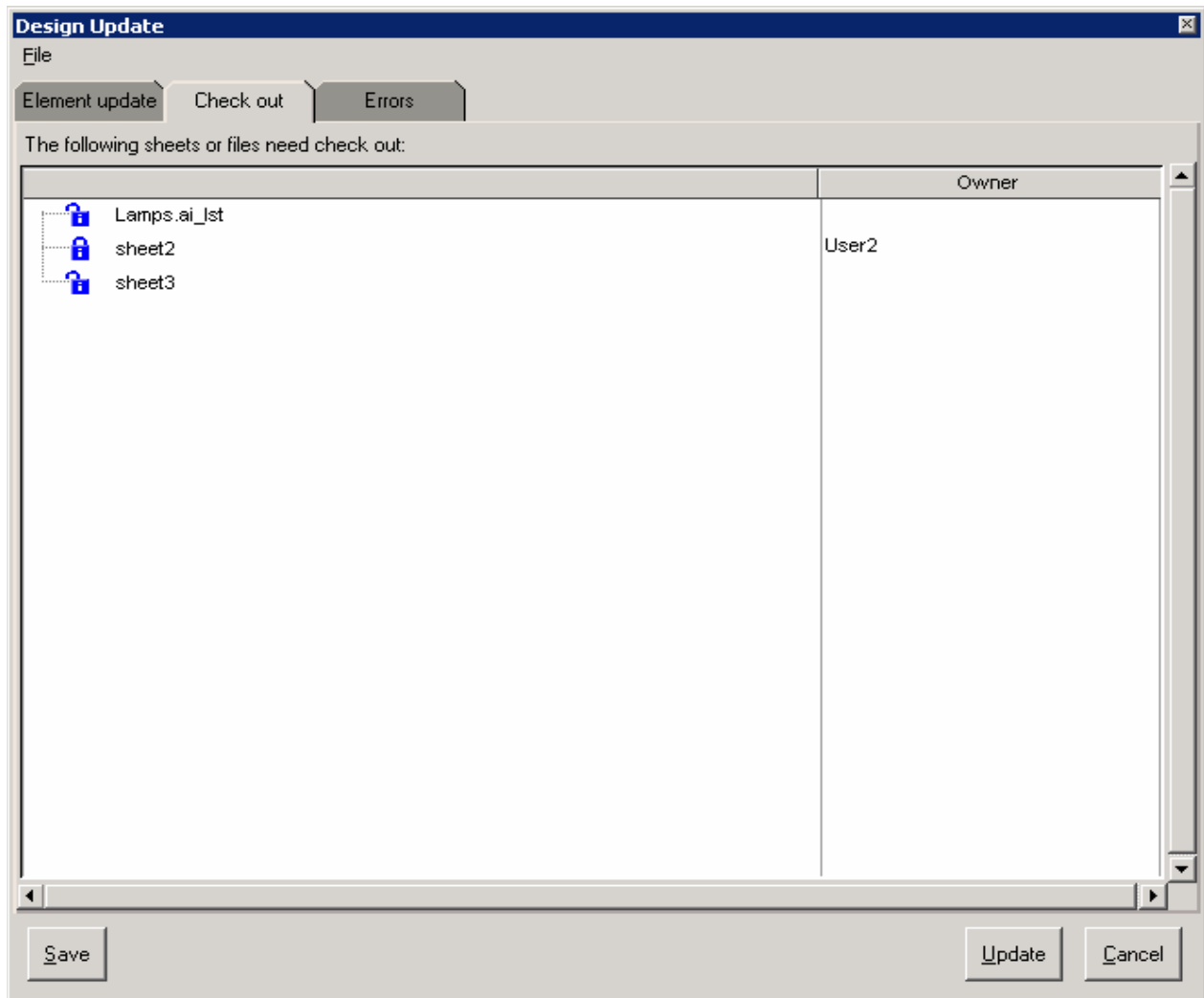
The change in the assemblies property is different than other properties. The Old Column shows the assemblies to be removed and the New Column shows the assemblies to be added. Assemblies that do not change are not shown.

Figure 2 Design Update Preview



If the design you are working with is under version control, the Check Out tab indicates if there are files or sheets that need to be checked out to accomplish all the proposed changes, as shown in Figure 3.

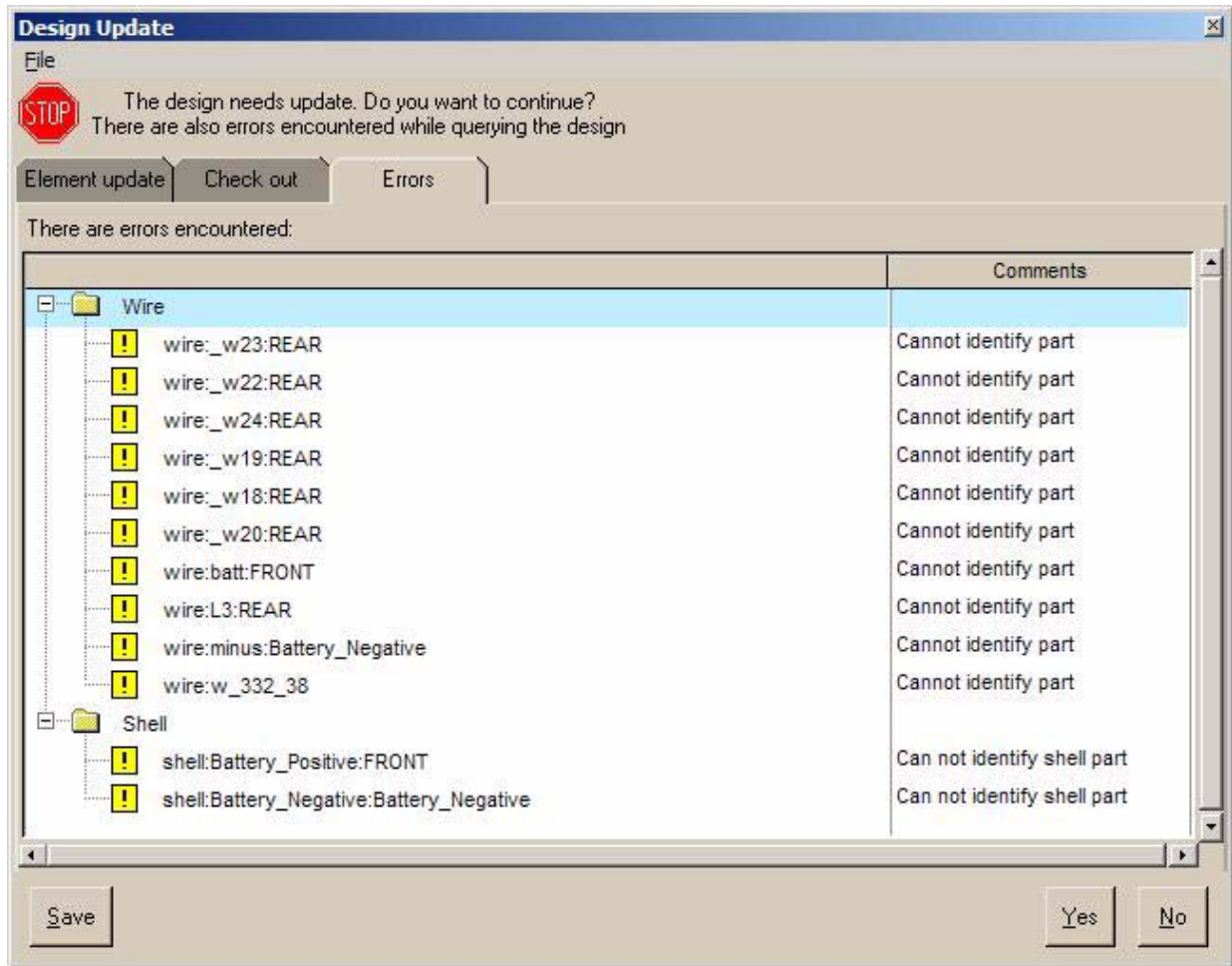
Figure 3 Design Update Check Out Tab



In the example shown in Figure 3, The Lamps.ai_lst, sheet2, and sheet3 need to be checked out to make all the changes shown on the Element Update tab. Sheet2 is currently checked out by User2.

A preliminary search of the design and the associated databases may indicate problems. To see the problems, click the Errors tab, as shown in [Figure 4 on page 6](#).

Figure 4 Design Update Errors Tab

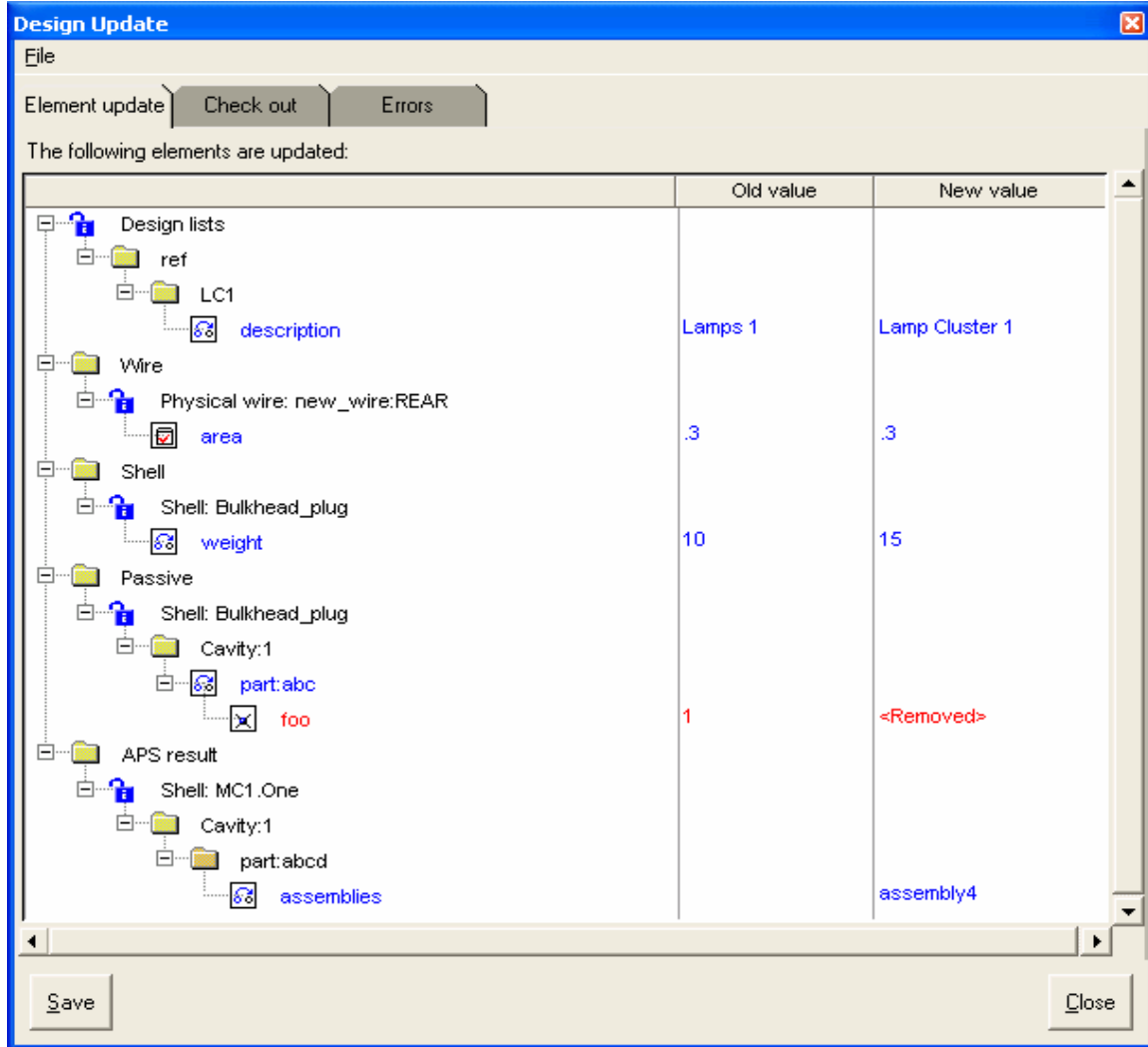


In the example shown in Figure 4, there are a number of errors. The parts will not be updated in the design.

To save reports, from the File menu, select Save. Enter the name and location of the text file and click OK.

If you click Update, the files and sheets needed to accomplish the update will be checked out and the changes will be made. After the changes are made, you see a report of the changes, as shown in Figure 5.

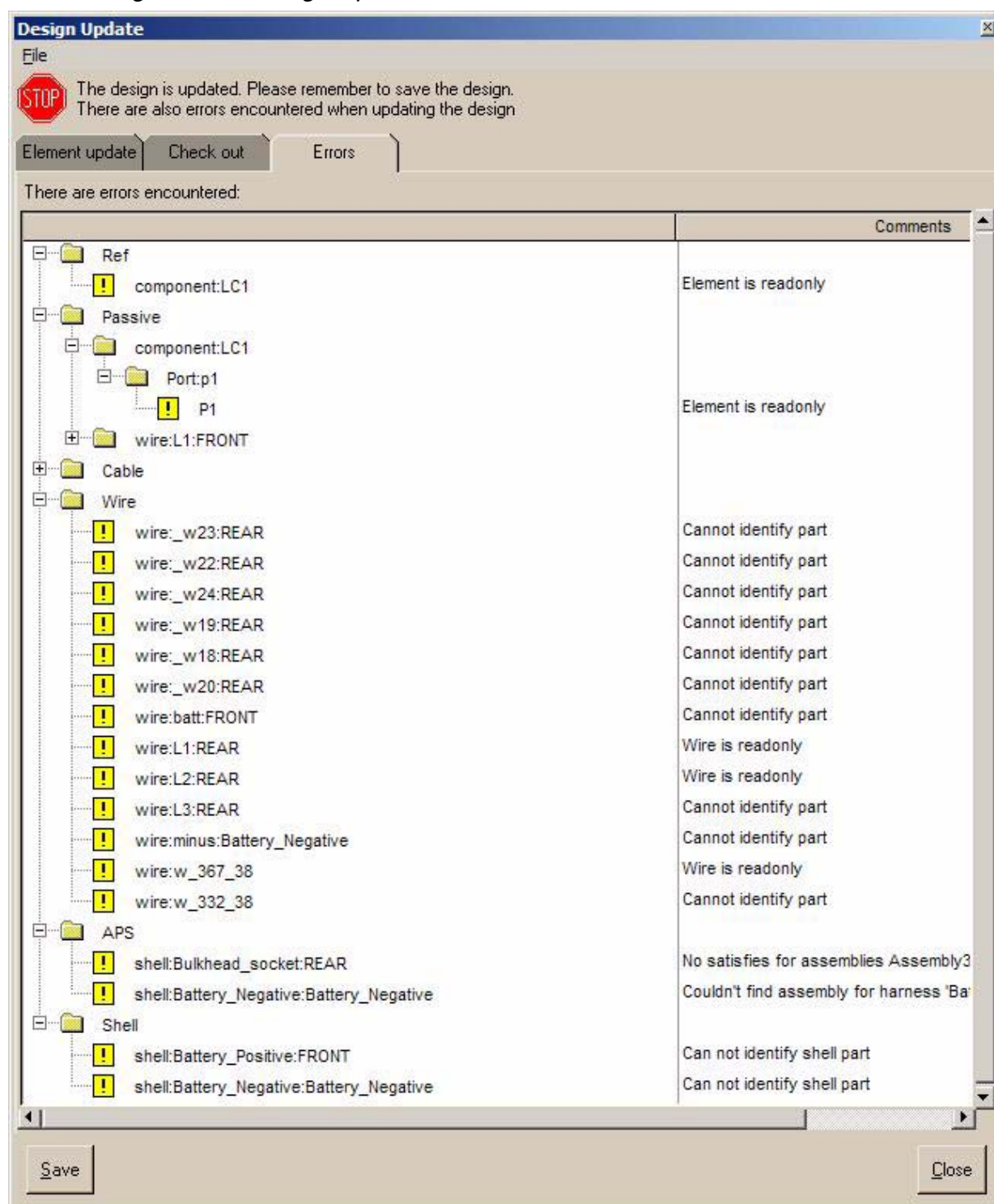
Figure 5 Design Update Results



The Check Out tab shows whether files or sheets were successfully checked out or not.

If there were errors during the update process, they will be posted to the Errors tab, as shown in [Figure 6 on page 8](#).

Figure 6 Design Update Errors Tab



When working on a design under version control, files and drawings checked out by other users cannot be updated. It is possible that while making changes to a sheet or drawing, a change needs to be made to the design. If the design is not checked out, these changes will not be made.

Understanding the Design Update Colors and Icons








Table 1 describes the colors used in the Design Update window.

Table 1 Design Update Colors

Color	Definition
Red	A property or attribute will be removed.
Green	A property or attribute will be added.
Blue	A property or attribute will be modified.

Table 2 describes the icons used in the Design Update window.

Table 2 Design Update Icons

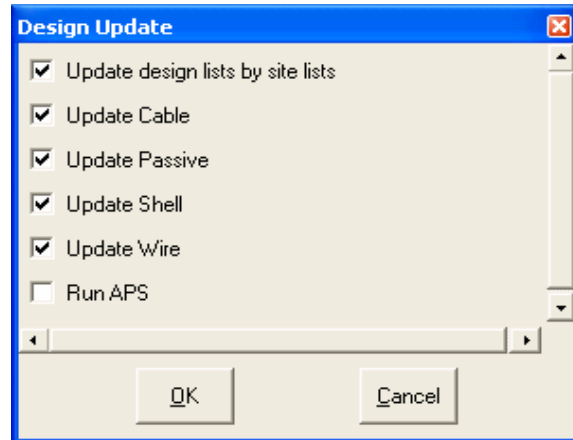
Icon	Definition
	The file or drawing is checked out by another user and cannot be updated.
	The file or drawing is not checked out by another user and can be updated.
	The value of the property or attribute will be updated.
	This property or attribute will be added.
	Assigns the correct value editor. The value may or may not be changed.
	The property or attribute will be removed.
	<p>The property or attribute could not be updated because the file or drawing could not be checked out.</p> <p>The part for this element cannot be identified in the parts database. This may occur for the following reasons:</p> <ul style="list-style-type: none"> There is no part in the database with a matching value in the part_no property There is more than one part in the database with a matching value in the part_no property

Updating a design

To update a design with the latest information:

1. From the Edit menu, select Design Update.

You'll see the Design Update dialog box.



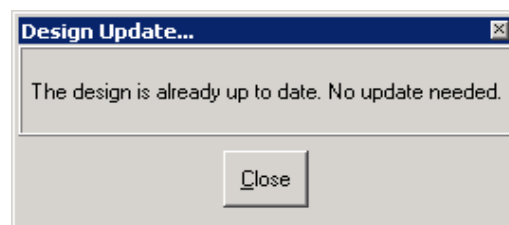
2. Select the databases from which you want to update information.
3. Click OK.

If there are any lists that need updating, you'll see a preview of what could be changed. For an example, see [Figure 1 on page 3](#).

4. Click Yes to update the lists.

If there are any design elements that need updating, you'll see a preview of what could be changed. For an example, see [Figure 2 on page 4](#).

If nothing needs to be updated, you'll see the following dialog:



5. If there are elements that need updating, review the information on the Check Out tab and the Errors tab. For examples, see [Figure 3 on page 5](#) and [Figure 4 on page 6](#).
6. Do one of the following:
 - To update the design, click Update at the bottom of the window.

- To abort the design update process, click Cancel.
- To save a report of the proposed changes, click Save.

When the update process is complete, you'll see a summary of the changes.

7. To save a report of the changes, click Save at the bottom of the window.
8. To close the Update Design window, click Close.

Known Issues with Design Update

Saber Harness crashes when updating shells with the same ref and harness values. The crash only occurs in designs created in releases prior to Y-2006.06-SP2. To work around this problem, create unique ref and harness values for shells before using Design Update. You can use DRC to check that shells have a unique reference.

Property description overwritten by pdb The description property for Refs are updated based on the ref list. If a part database has a description defined for the part, the description is overwritten by what the value defined in the part database. For example, if the shell database has a description value defined for the part, the shell's description property of the shells using this part are overwritten by the value defined in the shell database. Furthermore, when the description property is defined in cable slots, the wire that is assigned to this slot will be overwritten.

To work around this problem, do one of the following:

- Do not define the description property in the part databases.
- Use Design Update to update only type Refs after updating all other types.

Error not reported when the shell_* property is wrong When creating component mounted shells, the component symbol must have a shell_* property, where * is the name of the shell. The value of this property should be the part_no value of the connector on this component. In some cases, the value of this property becomes invalid after changes in the shell database, but the component mounted shells are still valid. In these situations, there is no error when querying the design. The error is reported when the design is updated.

Shell properties with no value changed without notification When updating shells, some properties may change from empty to *opt*. This change

is not reported. There are no consequences to this change because an empty property and *opt* are treated the same.

Warning dialogs open when updating shells A warning dialog opens when updating shells in the following situations:

- The component's shell_* property is invalid
- Cavities are removed from a pair of inline connectors and there are symbols assigned to these cavities
- Cavities are removed from a component mounted shell and there are ports mapped to these cavities

The shells are updated correctly. If you see these dialogs, you can close them.

Cable wire property change reported in incorrect section Design Update unassigns a wire from a cable when the wire slot it is assigned to no longer exists. The Cable property of this wire is also removed, if it exists. This action is reported in the Cable Slot section instead of the Wire section. The cable and wire are updated correctly.

Behavioral Change to Variants in Saber Harness (STAR 9000099645)

In prior releases, objects that had no variant assignment or that used the *opt* variant were automatically assumed to be common elements and were used in the Assembly Tool. In Y-2006.06-SP2, the behavior of the Assembly Tool filter has changed from matching anything to matching nothing. As a result, all common elements need to have a property that indicates they are common or the Assembly Tool will filter them out and not use them.

This change is the result of changes to the design rule checks to make them more deterministic. Before this change, it was not possible to determine whether *opt* was empty because the object was common or because it was accidentally left empty.

Changes to the filter will at a minimum affect the following features:

- Export from Harness to Bundle
- Bundle tool
- Export DSI
- Any place where data needs to be extracted with filters

MAST Template Encryption Utility

The Encryption tool enables you to encrypt templates so that at least portions of them are made unreadable by the end user. Encryption does not restrict access to the template and any user with access to the Saber simulator can use the template and view the unencrypted portions of the template.

The Encryption tool user interface allows you to read a template into a text editor and select which portions of the file you want to encrypt. The tool ensures that all of the necessary constructs are in place and then calls the `ai_encrypt` utility. This utility was only available as a command line utility.

The portions of the template that you want to encrypt use the following three lines of text in the template:


```
!crypt_start  
pack 002  
!crypt_end
```

The `!crypt_start` and `pack 002` lines are placed at the beginning of the text to be encrypted and must be on two contiguous lines. The `!crypt_end` line is placed at the end of the portion to be encrypted but must be before the final closing brace of the template. You can encrypt several sections of a template, but they can not be nested.

Getting Started with the Encryption Tool

The Encryption tool relies on the `ai_encrypt` utility which resides in the `Saber/bin` directory. You must include this directory in your `PATH` variable prior to invoking Sketch. You must also have write permissions in the source file directory.

To start the Encryption Tool:

1. Open the Model Architect panel by doing one of the following:
 - From the Tools menu, select Model Architect.
 - From the toolbar at the bottom of the screen, click the Model Architect icon. 
2. From the Model Architect tools menu, select Encryption Tool.






The encryption tool is intended solely for the purpose of encrypting MAST templates. When you open a file in the tool, it checks to ensure that the file has the required structure. It checks for the keyword “template” in a non-commented line; this is the template header line. If the tool finds a template

header line, it searches it for the keyword “encrypted”. If the word encrypted does not appear in the template header line the tool automatically inserts it. The tool does not allow the text of the file to be edited other than the insertion of the encryption constructs.

Normally, the ai_encrypt utility requires the unencrypted file to have a .dec extension and the resulting encrypted file is written with a .sin extension. The Encryption tool interface accepts either extension for the input file. It writes a .dec file to the working directory prior to calling the ai_encrypt utility.


The Edit > Tool Preferences> Save Backup command allows you to save a backup copy of the input file before any operations are performed on it. If selected, this option saves a backup copy to the working directory whenever you open a file. The backup file retains the original file name with a .bak extension appended to it.

The encryption tool interface has an icon bar with the following icons.


Icon	Description
	The file open icon opens a file browser, allowing you to select the unencrypted template you want to encrypt.
	The !crypt_start icon activates an insertion cursor. Clicking the left mouse button in the text window then inserts the !crypt_start and pack 002 lines at the cursor location. This icon is only enabled if the template has no start and end lines or there are complete start and end line pairs.
	The !crypt_end icon activates an insertion cursor. Clicking the left mouse button in the text window then inserts the !crypt_end line at the cursor location. This icon is only enabled after a !crypt_start line has been inserted.
	The encrypt icon invokes the ai_encrypt utility and encrypts the portions of the template wrapped in the !crypt_start and !crypt_end lines. This icon is only enabled if the template has both the start and end lines inserted.
	The undo and redo icons provide multiple undo and redo of the !crypt_start and !crypt_end insertions.

Encrypting Templates


To encrypt a template using the Encryption tool:


1. From the Model Architect tools menu, select Encryption Tool.
The small help window at the bottom of the tool interface provides hints to guide you.
2. If you do not want to save a backup of the original template file, from the Edit menu, select Tool Preferences and uncheck Save Backup. The tool will remember your preference on future invocations.
3. Click the File Open icon or from the File menu, select Open. 
You see the contents of the template file in the text editor portion of the tool.

If the file does not appear to be a valid MAST template or the file appears to be already encrypted, you see an error message.

If the template is valid and is not already encrypted, the encrypted keyword is inserted, if it is needed.
4. Click the green !crypt_start button to activate the !crypt_start insertion cursor. 
5. Use the left mouse button to select the position for the start of the encryption.

Typically the encryption start point is below the template header so that the end user can still read the template arguments and connection points.

The !crypt_start and 002 lines are inserted and the red !crypt_end button becomes enabled.
6. Click the red !crypt_end button to activate the !crypt_end insertion cursor. 
7. Use the left mouse button to select the position for the end of the encryption. The text insertion cursor must be placed prior to the final closing brace of the template.
8. Repeat steps 4–7 for each section of the template you want to encrypt.

Do not nest the start/end pairs. This means that after a !crypt_start line you must have a !crypt_end line before the next !crypt_start line. If you make a mistake use the undo and redo buttons.
9. Click on the encrypt icon to run the encryption utility. 

This icon will only be enabled if all of the start and end points are in proper alignment. If you open a template that is already prepared for encryption this icon will be enabled immediately.

After performing the encryption, the tool window displays your encrypted file.

10. Inspect the file to ensure that the encryption was carried out as expected prior to distributing the template.

Thermal Impedance Tool Enhancements (STAR 9000003211)

In the Y-2006.06-SP2 release, the Thermal Impedance tool includes the following enhancements:

- The thermal RC stages can vary from 2 to 7. With this enhancement, you can decide how many RC stages you need to match the thermal impedance characteristics. For irregular curves with more than three inflection points, you may see better results if you use more stages. The default number of stages is 3.
- New Rth anchor line. In the previous version, when you dragged the Rth anchor line, the tool kept the ratio of Rth (Cauer form) unchanged and changed the poles of the RC network accordingly. The result was that the shape of the thermal impedance curve changed. In Y-2006.06-SP2, the Rth anchor line keeps the ratio of Rth (Foster form) and the poles of the network unchanged and instead, changes each Cth appropriately. With this enhancement, you can adjust the sum of Rth while keeping all the poles unchanged. From a graph perspective, when you drag the Rsum anchor widget, the thermal impedance curve moves up and down while the shape remains the same.
- New pole anchor lines. There is a new pole anchor line widget. It allows you to adjust each individual inflection point (pole) while keeping Rsum and all other poles unchanged. With these two new anchor widgets, you can quickly get very good initial values of R and C for the optimizer.
- The optimizer now optimizes on the equivalent Foster topology of the original Cauer topology, so the values of R and C in the optimizer window are different than those in the main window. In the main window, the values of R and C are for the Cauer topology. In the optimizer window, the values of R and C are for the Foster topology.

Battery Tool Enhancements (STAR 9000142958)

The battery tool has been improved for the Y-2006.06-SP2 release. The changes include:

- Support scanned data input. The Battery tool now supports all three formats: ai_dat, ai_scan and ai_pl.
- For ai_pl input, a pull-down list of the signals in the plot file is provided to make it easier for you to select the corresponding signals.
- For ai_dat file input, the defined format is displayed so that you can fix the input file if there is an error detected.
- An entry field was added allowing you to specify the name of a file that contains the load current waveform for transient discharge and charge characteristics. If a current waveform file is specified, the contents of the file overrides the data point entries. The current waveform file and voltage waveform file must have the same file extension.
- At the dc spec step, optimization on self discharge characteristics is now optional. By default, there will be no optimization on self discharge characteristics. The optimization will be carried out only when you have the target data and select to do so.
- The behavior of the Next button has been improved. At any step, clicking the Next button will go to the next required step. Some steps may be skipped to make it more convenient for you to step through the characterization flow. However, you can always go to any step by selecting the step from the characterization flow pane (the left pane).
- A new battery model, batt_pb_2th, has been added to the supported model list. Now you can create a lead acid battery model with a thermal pin.

Updates to Co-Simulations, Frameway Integrations and Interfaces

The Y-2006.06-SP2 release has updates to the following co-simulations and Frameway integrations:

- [SaberHDL Simulink Co-simulation Interface](#)
- [Saber Simulink Co-Simulation Interface](#)
- [SaberLink/Matlab Frameway](#)
- [Simulink-2-Saber Model Export Utility](#)

- [Saber/Verilog Co-Simulation Interface](#)
- [Mentor Graphics ePD Framework](#)

SaberHDL Simulink Co-simulation Interface

SaberHDL Simulink co-simulation has been added in the Y-2006.06-SP2 release. Its usage is similar to that of Saber Simulink co-simulation.

To support co-simulation with both Saber and SaberHDL simulators simultaneously, we replaced the original `simulink_cosim_sync.dll` with `simulink_cosim_sync_saber.dll` and `simulink_cosim_sync_saberhdl.dll`.

After you install Y-2006.06-SP2 and the `saberhdl 2006.06.2.183` add-on, you can find the dlls under the following directories:

`Install_root/Saber/bin/simulink_cosim_sync_saber.dll`

`Install_root/SaberHDL/bin/simulink_cosim_sync_saberhdl.dll`

If you are using an earlier version than Matlab R14 SP3, you need to copy the correct co-simulation libraries and rename them. The Simulink co-simulation files are located in the following directories:

`Install_root/Saber/bin/Matlab_version`

`Install_root/SaberHDL/bin/Matlab_version`

Matlab includes two major sub products: Matlab engine and Simulink engine. The following table shows the most recent versions of the Matlab products.

Matlab version	Matlab engine version	Simulink engine version
R14 SP3	7.1	6.3
R14	7.0	6.0

For example, if you are using Matlab R14, you need to copy the SaberHDL co-simulation library `simulink_cosim_sync_saberhdl7.0.dll` and the Simulink libraries from `SaberHDL/bin/Matlab_7.0` to `SaberHDL/bin` and rename the co-simulation library to `simulink_cosim_sync_saberhdl.dll`. If you want to use Saber Simulink co-simulation, copy the Saber co-simulation library `simulink_cosim_sync_saber7.0.dll` and the Simulink libraries from `Saber/bin/Matlab_7.0` to `Saber/bin` and rename the co-simulation library to `simulink_cosim_sync_saber.dll`.

Saber Simulink Co-Simulation Interface

The Saber Simulink Co-Simulation now supports Matlab versions 2006a and 2006b. The default version remains R14 SP3.

SaberLink/Matlab Frameway

The Saber Simulink Co-Simulation now supports Matlab versions 2006a and 2006b. The default version remains R14 SP3.

Simulink-2-Saber Model Export Utility

The Simulink-2-Saber Model Export utility has been tested successfully against MATLAB releases 14 SP3, 2006a and 2006b. Use the latest version of the utility available at:

install_root/Y-2006.06-SP2/Saber/lib/tool_model/Simulink2SaberRTWexport_Matlab7_1

If you are using the Model Export utility with the 2006b MATLAB release, the Mathworks-specific Real-Time Workshop (RTW) may generate an error after the process successfully completes. The error is benign and RTW-specific.

Saber/Verilog Co-Simulation Interface

The Saber/Verilog co-simulation has been updated in the Y-2006.06-SP2 release to support LDV 5.6 on Solaris, HP8000, HP9000 and Linux.

Mentor Graphics ePD Frameway

The Mentor Graphics ePD Frameway integration has been updated in the Y-2006.06-SP2 release to support ePD 2005 on Windows.

New Models

This release has the following new models:

- [Idealized Brake Models](#)
- [Idealized Continuously Variable Transmission Model \(CVT\)](#)
- [Multiple Inputs Time Domain System Analyzer Model](#)
- [Linear Variable Differential Transformer with Two Secondary Coils Model](#)

Idealized Brake Models

The brake template models an ideal friction brake (disc and drum types) with a mechanical translational position port as input and a mechanical rotational velocity port as output.

The model is based on the mechanical principle to calculate the braking torque from the actuating force and the energy conservation principle to estimate the disc/drum temperature rise from the environmental temperature.

The brake types from which you can chose are:

- Disc brake
- Duo-servo drum brake
- Duo-duplex drum brake
- Simplex drum brake

The major features modeled are:

- The braking torque varies with the actuating force
- The braking torque varies with the vehicle speed
- The braking torque varies with the disc/drum temperature

Idealized Continuously Variable Transmission Model (CVT)

The cvt_w template models a continuously variable transmission. The model is ideal in the sense that the efficiency is 100%. The model has two angular velocity ports for the input and output shafts and an input control port to control the gear (pulley) ratio.

Multiple Inputs Time Domain System Analyzer Model

The new tdsa2 template is a two-input, time domain system analyzer. It is very much like the original tdsa model. The main difference is that the gain and phase are now calculated as the ratio of the measure input and the reference input. The original model calculated gain and phase as a ratio of the input to the output. This allows the model to be applied in a manner similar to a 'Venable' loop gain measurement device or an HP dynamic signal analyzer.

Linear Variable Differential Transformer with Two Secondary Coils Model

The new lvdt3 template is a linear variable differential transformer with two secondary coils. It is very much like the original lvdt model. The main difference is that lvdt3 has two secondary coils. When the core moves from side to side, the voltage amplitude of one secondary coil increases while that of the other coil decreases. When the coils are in the middle position, both output voltages are the same. It results in the total output being zero if they are connected in opposition.

New Component Models

The Y-2006.06-SP2 release contains the following component models:

- maxx_65n—Everstart brand 90 Ah lead-acid battery manufactured by JCI
- maxx_75n—Everstart brand 55 Ah lead-acid battery manufactured by JCI
- cs3361x—Alternator regulator model with thermal pin
- irf640x—Dynamic thermal HEXFET power MOSFET

The Dynamic thermal power MOS is available with the new Dynamic Thermal Alternator design example.

Dynamic Thermal Alternator with Charging System Loads and Battery Example (STAR 9000132326)

The Y-2006.06-SP2 release includes a 1.4KW, 3-Phase, 12-Pole 14.45VDC Dynamic Thermal Alternator with Charging System Loads and Battery example. This example is a typical application of a dynamic thermal automotive alternator configured as an air-cooled machine, implemented in a simple charging test system.

To view the new example, from the Saber Sketch or Saber Harness Tools menu or the Tool bar, select Design Examples.

Saber Quick Start Enhancements

The Saber Quick Start documentation has been updated to more accurately reflect the current functionality in Saber. Tool screenshots have been updated and new screenshots added to enhance the usability of the document.

Resolved STARs in Y-2006.06-SP2

The Synopsys Technical Action Requests (STARs) listed in the following table are resolved in version Y-2006.06-SP2.

Table 3 Resolved Saber STARs

STAR ID	Title
9000147735	Auto ref in Saber Bundle MCad import corrupts consistency with Saber Harness
9000144968	Template opening problem in Part Gallery

Table 3 Resolved Saber STARs (Continued)

STAR ID	Title
9000141620	Error in StateAMS model - basically, the tool auto picks the wrong type of unit
9000141270	Printing result of dotted line are solid and light
9000141220	Import MCAD wire lengths does not work for MCAD 1.1 files
9000141201	Add Raise/Lower to RMB when over a physical wire
9000139665	Saber Harness wire labels disappear when components are connected, moved
9000138825	CVC performance multiple sheets open
9000137773	Re-Reference crashes Saber Sketch
9000137753	We can not see all connector categories
9000135133	Cannot annotate schematic if a probe is placed
9000134533	Saber DIA may fail on IBM because of file name
9000130655	Design Architect Frameway creates script with wrong permissions on Windows
9000125996	Impossible to create subharness with the same name as an assembly
9000114181	Rename of assemblies doesn't show in Passive Property Editor
9000099647	Find/select shows all components on a sheet
9000099645	Filter takes components which have the default variant value :*opt*
9000095176	Saber saves in temporary files
9000086707	display error message open design
9000086702	Issue release crashes during simultaneous release to same release folder
9000074189	assembly data lost when harness is closed
9000053733	Wrong results in Find/Select
TKS0070033	Part_no & desc. of earth symbol not transmitted from schematic to bundle

Auto ref in Saber Bundle MCad import corrupts consistency with Saber Harness (STAR 9000147735)

When importing data using the Catia V5 interface, all of the element refs were renamed using the auto ref function. Only elements of type junction, passive and segment should be renamed.

This problem has been fixed in Y-2006.06-SP2.

Template opening problem in Part Gallery (STAR 9000144968)

In the 2006.06-SP1 release, the Parts Gallery View Template menu command resulted in the application hanging.

This problem has been fixed in Y-2006.06-SP2.

Error in StateAMS model - basically, the tool auto picks the wrong type of unit (STAR 9000141620)

The declaration of thermal and rotational quantities in the StateAMS modeling tool was resulting, under certain conditions, in a MAST syntax error.

This problem has been fixed in Y-2006.06-SP2.

Printing result of dotted line are solid and light (STAR 9000141270)

In large Sketch or Harness schematics, thin dashed lines appeared solid when they were printed.

This problem has been fixed in Y-2006.06-SP2.

Import MCAD wire lengths does not work for MCAD 1.1 files (STAR 9000141220)

When an MCAD version 1.1 file was imported in Saber Harness, the import process aborted and issued an error.

This problem has been fixed in Y-2006.06-SP2.

Add Raise/Lower to RMB when over a physical wire (STAR 9000141201)

In Saber Harness, the Back/Front operation was only supported from the Schematic menu.

In Y-2006.06-SP2, Back/Front have been added to the right mouse button popup menu when you are on a wire.

Saber Harness wire labels disappear when components are connected, moved (STAR 9000139665)

The physical wire definition properties disappeared after moving a connected symbol. The definition properties reappeared by moving the mouse over the physical wire.

This problem has been fixed in Y-2006.06-SP2.

CVC performance multiple sheets open (STAR 9000138825)

CVC performance was poor when the changes were made to one or two sheets while other sheets were open, even when there were no changes made to the other sheets.

For each of the opened sheets, when the sheet was being re-opened after a check in operation, some files were read multiple times.

This problem has been fixed in Y-2006.06-SP2.

Re-Reference crashes Saber Sketch (STAR 9000137773)

A Re-Ref symbol reference would cause Saber Sketch to crash if there was a connector in the schematic.

This problem has been fixed in Y-2006.06-SP2.

We can not see all connector categories (STAR 9000137753)

Two problems have been fixed with the visibility preferences of the top level categories in Parts Gallery:

- The visibility preferences of the top level categories relied on an indexing scheme to refer to a particular category. When the list of top level categories was modified (a category added or deleted), the indexing was not updated resulting in some categories being visible when they should not and vice versa.
- Visibility preferences of top level categories were applied when the Parts Gallery was invoked in Harness from the Property Editor to select connectors, cables, bundles, etc, using the same indexing scheme. These preferences should not have been applied because the visibility preferences were set for the main Parts Gallery.

These two problems have been addressed in Y-2006.06-SP2 by changing the way the visibility preferences are saved. Because of this change, you need to reset the visibility of the Parts Gallery top level categories.

Cannot annotate schematic if a probe is placed (STAR 9000135133)

In Saber Sketch, if the Draw tool window was within the probe area, you could not annotate any item.

This problem has been fixed in Y-2006.06-SP2.

Saber DIA may fail on IBM because of file name (STAR 9000134533)

Individual runs of Saber distributed iterative analysis (DIA) may fail because they can't find intermediate files. The message "Cannot open the file <design_name>.<number>_environment.wf" was displayed. The problem was that the actual file had a slightly different name, e.g. missing one letter. The resulting plotfile had empty segments for the runs that failed.

This problem has been fixed in Y-2006.06-SP2.

Design Architect Frameway creates script with wrong permissions on Windows (STAR 9000130655)

Starting Saber applications from Mentor Graphics' Design Architect could fail on Windows due to permission problems.

This problem has been corrected in Y-2006.06-SP2 by directly starting the sock_opt program instead of creating and executing a local command file.

Impossible to create subharness with the same name as an assembly (STAR 9000125996)

In Saber Harness, you could not create a subharness with the same name of an assembly if the assembly was created first. However, after you created the subharness, you could change the name to match the name of the assembly.

This problem has been fixed in Y-2006.06-SP2.

Rename of assemblies doesn't show in Passive Property Editor (STAR 9000114181)

If a user renamed an assembly in the Saber Harness Assembly tool, this change didn't show in the assembly field in the Passive Property editor. Only the assembly database was getting updated when an assembly was renamed.

This problem has been fixed in Y-2006.06-SP2. All the necessary databases are updated.

Find/select shows all components on a sheet (STAR 9000099647)

In Saber Harness, the Find operation incorrectly handled the name of the sheet.

In Y-2006.06-SP2, only the symbols whose names match the pattern entered by the user will be found with settings "All sheets" and "Symbol".

Filter takes components which have the default variant value :*opt* (STAR 9000099645)

In prior releases, objects that had no variant assignment or that used the *opt* variant were automatically assumed to be common elements and were used in the Assembly Tool. In Y-2006.06-SP2, the behavior of the Assembly Tool filter has changed from matching anything to matching nothing. As a result, all common elements need to have a property that indicates they are common or the Assembly Tool will filter them out and not use them.

This change is the result of changes to the design rule checks to make them more deterministic. Before this change, it was not possible to determine whether *opt* was empty because the object was common or because it was accidentally left empty.

Changes to the filter will at a minimum affect the following features:

- Export from Harness to Bundle
- Bundle tool
- Export DSI
- Any place where data needs to be extracted with filters

Saber saves in temporary files (STAR 9000095176)

The root cause of this problem was that in Saber Harness data was saved into a temporary file before checking whether the data could be saved to the database.

In Y-2006.06-SP2, when you do not have write permission for the directory in which the design is open or for the database files to be changed, the save operation will be denied and there will no longer be any temporary files on the file system.

display error message open design (STAR 9000086707)

The parser in the Saber Harness Assembly Tool that read the assembly data accepted a line of at most 1023 characters long. The length of the attribute field in the assembly database may go beyond that limitation.

In Y-2006.06-SP2, the parser has been modified to accept lines of more than 1023 characters.

Issue release crashes during simultaneous release to same release folder (STAR 9000086702)

Saber Harness was not able to detect that Issue Release was done in the issue directory shared with multiple users instead of the individual directory specified by the release name under the shared issue directory. Additionally, the lock mechanism was not set correctly to handle the possibility of users performing Issue Release concurrently.

In Y-2006.06-SP2, you can use Issue Release with a different release name under the shared issue directory.

assembly data lost when harness is closed (STAR 9000074189)

If the Assembly Tool was invoked before a design was opened, the data in the Assembly Tool was not refreshed.

This problem has been fixed in Y-2006.06-SP2.

Wrong results in Find/Select (STAR 9000053733)

In Saber Harness, when you searched in the variant-field, the results showed data from the ref-field.

The root cause was that the Find operation added the ref name as a part of the target text to match when searching a property field. This problem has been fixed in Y-2006.06-SP2.

Part_no & desc. of earth symbol not transmitted from schematic to bundle (TKS0070033)

Previously, in some specific cases, some properties were not updated from Harness to Bundle, such as part_no.

This problem has been fixed in Y-2006.06-SP2.

Saber® Release Notes for Version Y-2006.06-SP1

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These release notes present the latest information about Saber Version Y-2006.06-SP2 in the following sections:

- [New Features, Enhancements, and Changes in Y-2006.06-SP1](#)
- [Resolved STARs in Y-2006.06-SP1](#)

New Features, Enhancements, and Changes in Y-2006.06-SP1

Version Y-2006.06-SP2 provides new features, enhancements, and changes as described in the following sections:

- [Clean Files Feature](#)
- [Style Sheet Default Symbol Color \(STAR 9000121279\)](#)
- [New Models](#)
- [New Component Models](#)
- [Design File Changes in Y-2006.06](#)

Clean Files Feature

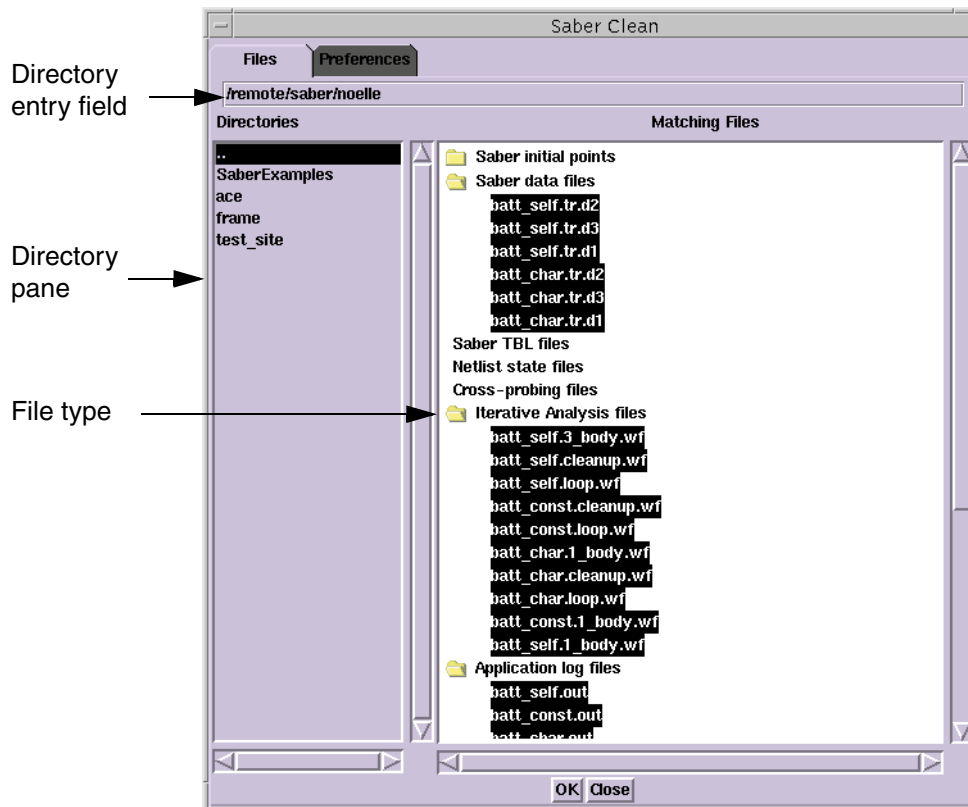
The Saber Clean Files feature enables you to delete non-essential files that are created during a Saber simulation session, such as netlister state files, cross-probing support files, Saber initial point files, data files, table files, iterative analysis files and application log files. These files are not design source files that you've created and used as input to a simulation, such as schematic and model files.

Using Clean Files You can access the Clean Files feature from Saber Sketch, Saber Harness and Saber Guide.

To clean files:

1. From the File menu, select Clean Files or from the operating system command line, enter **saberclean**.

The Saber Clean window opens in the current working directory showing a list of selected files to delete.



2. If necessary, change the directory. To change the directory, type the directory in the directory field or navigate to the directory in the Directories pane.

When you change directories, the Matching Files pane updates to show the files that match the active file types. For more information, see [Managing File Types](#).

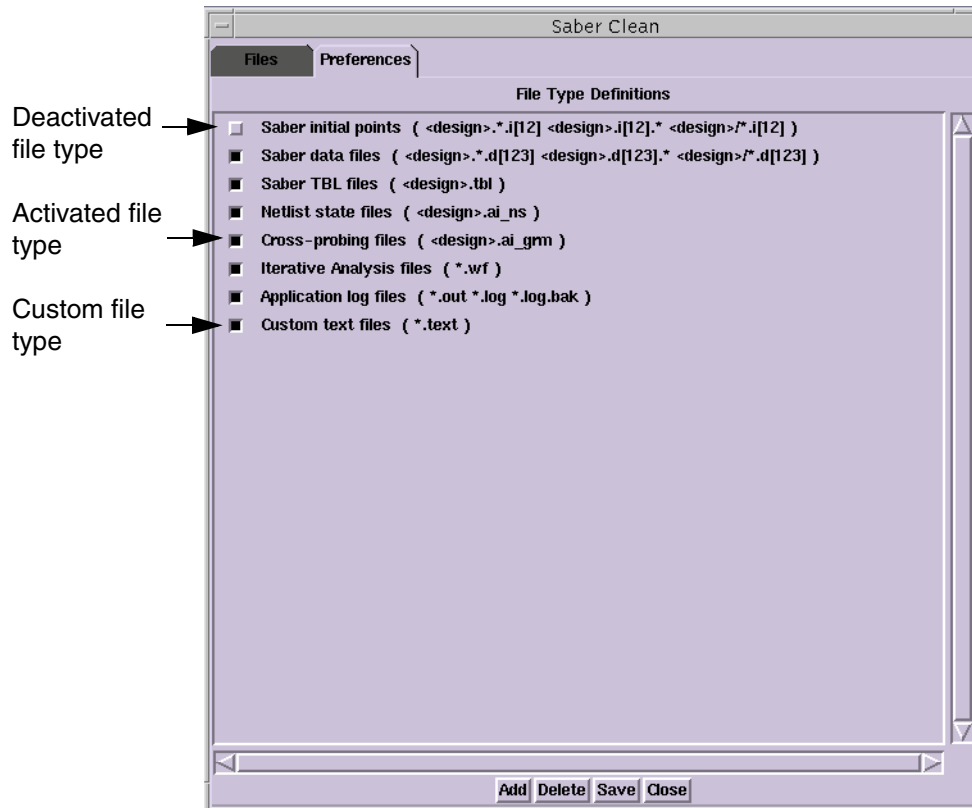
3. To change the list of selected files, do any of the following:
 - Click on a file name to select or unselect it.
 - Click on the file type to select or unselect all the files of that type.
 - Click on the file type folder to close the folder and unselect all the files in the folder.
4. Click OK to delete the selected files.

Managing File Types You can manage the file types used in Saber Clean by changing the options in the Preferences tab. Here you can activate or

deactivate file types, add new file types, change file types and remove file types.

To manage file types:

1. From the File menu, select Clean Files or from the operating system command line, enter **saberclean**.
2. In the Saber Clean window, click the Preferences tab.



3. Do any of the following:
 - To activate a type, check the box next to the file type.
 - To deactivate a type, uncheck the box next to the file type.
 - To add a file type, click the Add button. Enter a description and file extension.



- To change a file type, double-click on the file type. Change the description or the file extension.
 - To remove a file type, select the file type and click the Delete button. You can only remove user-added file types.
4. Click Save to save your preferences to .saberclean_user.

Note: You can apply the saved preferences to all users by copying the .saberclean_user file to sabercleanRc.site and moving the file to the location specified by the AI_SITE_PATH environment variable.

Style Sheet Default Symbol Color (STAR 9000121279)

The default color for symbols now comes from the style definition.

In the Y-2006.06 release, the default color for a symbol came from the symbol definition. For more information on Style Sheets, see [“Style Sheets” on page 49](#).

New Models

In this release, there are the following new models:

- [Dynamic Thermal Alternator Model \(STAR 9000129374\)](#)
- [Ideal Solenoid Model \(STAR 9000129310\)](#)
- [Idealized Encoder Models](#)
- [Nonlinear Temperature Sensor Model \(STAR 9000126911\)](#)
- [Var/nu Actuated Clutch Model](#)

Dynamic Thermal Alternator Model (STAR 9000129374)

There are two thermal alternator models in this release: masstherm_w and alternator_corex.

masstherm_w The masstherm_w template models a thermal element with consideration for thermal resistance and heat capacitance. The easily configured thermal resistance changes non-linearly as a function of rotational speed. This permits usage in applications where thermal resistance of an element changes due to windage (e.g. cooling) that is usually a function of rotational velocity of external devices such as fans. The masstherm_w template offers flexibility as may be applied in either heating or cooling applications.

alternator_corex The **alternator_corex** template models a self-heating 3-phase, wye-connected, symmetrical electro-mechanical generator. As a physical behavioral model it embraces electrical, magnetic, mechanical, and thermal characteristics of a typical salient or cylindrical synchronous machine. It may be implemented as the representation of an automotive alternator in typical charging system scenarios or as a synchronous turbo generator for high power systems.

This model includes the effects of temperature sensitive magnetic saturation. This implies the internal flux couplings are a function of shaft rotational angle and magnetic flux densities and permeabilities of saturable rotor and stator core permeances/reluctances. Incorporation of 3rd harmonic in the output phase voltage is a function of machine saliency. The model also offers self-excitation effect caused by magnetic remanence. It includes dissipative losses such as copper losses, core losses, running friction, windage, and inertia associated with a typical alternator machine. Rectification of the 3-phase output and field current control are external to this template.

The objective of this model is to provide realistic transient behavior with inclusion of physical ripple and harmonics. This allows accurate assessment of an alternator machine versus AC rectification, and permits investigation of power boost and efficiency schemes. Investigation of what-if scenarios can also be performed due to resonant loads, load dump and transient suppression protection, detailed field current regulator implementations, and more accurate failure analyses (e.g. shorted or open diodes, field winding short).

Because power generation devices, such as an alternator, are fundamental to the integrity of the power distribution system, examination of the system performance cannot be carried out with much certainty if these devices are too ideal. For example, models capable of providing ample current under operating conditions when physical devices cannot. The goal of more detailed alternator device models are to target and investigate specific phenomenon that impact the system, as opposed to the system performance over an entire drive cycle.

Ideal Solenoid Model (STAR 9000129310)

The `sw_solenoid` template models an ideal solenoid electrical switch. When the coil of the solenoid is driven by a current with sufficient strength, the magnetic field will be strong enough to pull the plunger. When the displacement of the plunger is equal to the specified stroke, an electrical switch is closed to allow electrical current to flow through the armature.

Thermal effect is not modeled.

Idealized Encoder Models

There are two encoder models in this release: `r_encoder` and `r_encoder_p/pw`.

r_encoder The `rencoder` (`rencoder_w`) template models an ideal absolute type rotary encoder with a mechanical rotational port as input and a state variable as output.

The input to the `rencoder` template is the rotational angle port and the input to the `rencoder_w` template is the rotational velocity port. The state variable output will have n possible distinct integer values ranging from 0 to $n-1$, where n is the number of distinct positions on a 2p circle specified as a model parameter.

The output can be converted to an analog signal by connecting to a `z2v` model. If necessary, the analog signal can be further converted to a physical signal by connecting to a `var2x` model, for example, `var2v` for voltage.

r_encoder_p/r_encoder_pw The `rencoder_p` (`rencoder_pw`) template models an ideal relative type rotary encoder with a mechanical rotational port as input and a digital pulse signal as output.

The input to the `rencoder_p` template is rotational angle port, and the input to the `rencoder_pw` template is rotational velocity port. The digital output will have n pulses per revolution, where n is the number of teeth on a 2p circle specified as a model parameter.

The output can be converted to a digital counter to determine the relative position of the shaft.

Nonlinear Temperature Sensor Model (STAR 9000126911)

The `tempc2var_lu` template models a non-linear temperature sensor with time delay. The template has two `thermal_c` ports for inputs and an output control port for an output.

The Table Look Up modeling Tool (TLU) is used to specify the relationship between the input differential and the output. There are two instances of TLU used by this template. The first one defines the sensor's output value as a function of the temperature difference between the two inputs. The other defines a time constant (τ) as a function of the input differential.

The output can be converted to an analog signal by connecting to a `z2v` model. If necessary, the analog signal can be further converted to a physical signal by connecting to a `var2x` model, for example, `var2v` for voltage.

Var/nu Actuated Clutch Model

The template `clutch_vctrl` is a model of a friction clutch actuated by a control signal. The friction in the contact between the driving and the driven shaft is controlled by a control signal applied to the `ctrl` port. The friction torque is simulated as a function of relative velocity and assumed to be the sum of the Stribeck, Coulomb (dry), and viscous terms. The transition from the breakaway to the Coulomb friction is assumed to be exponential. No dynamic friction terms are considered in the template.

New Component Models

This release includes the TJA1020 LIN Transceiver component.

Design File Changes in Y-2006.06

In the Y-2006.06 release, the design file was upgraded to version 10. This affected Saber Harness, Saber Bundle and Saber Sketch. For more information, see [“Design File Upgrade to Version 10” on page 47](#).

Note: There are no additional design file changes in Y-2006.06-SP1.

As a result of the changes to the data files in the Y-2006.06 release, they are no longer backward compatible. You cannot open a Y-2006.06 design file in a previous release. However, you can save a Y-2006.06 design file using an earlier design format.

To save the design using a previous design format:

1. With the design open, from the File menu, select Save As.
2. In the Files of Type list, select an earlier version from the list.
3. Click Save.

Resolved STARs in Y-2006.06-SP1

The Synopsys Technical Action Requests (STARs) listed in the following table are resolved in version Y-2006.06-SP1.

Table 4 Resolved Saber STARs

STAR ID	Title
9000130853	Simulink-2-Saber Model Export makefile that generates MAST model cleanup req

Table 4 Resolved Saber STARs (Continued)

STAR ID	Title
9000130410	Memory consumption explodes for TLU models with large dataset
9000129450	CatiaV5 V5 MCad projection bugs
9000129239	Error message when opening sub-schematic
9000127273	Calclength table function using decimals in length property not working
9000127046	Logical wires are invisible after move/zoom operation
9000126736	Mcad import corrupted in Saber Bundle
9000124274	simulink model import
9000123074	testify result will change after I clear previous result and run again
9000122287	Data disappeared during checkout
9000122157	Saber monte carlo fails on Linux
9000114201	Adding same shell twice
9000114182	It is not possible to filter for the complete Instrument harness
9000111000	unchanged pasted commands do not appear in the command history
9000108024	Filter does not clear in table manager
9000108023	After run APS - no assemblies from Assembly Tool
9000105983	The APS result includes only the first connector that has been marked
9000099670	Extract and update on assembly table does not increase number of rows
9000096604	Cannot open acread 7.0 on Linux from Saber
9000094535	Problem Opening Symbol and Schematic w/ same name at same time
9000082291	No Monochrome Print option on Windows.
9000081771	Optimizer of diode tool I-V characteristic does not change I-V parameters
9000072282	documentation c_friction is missing
9000002558	line style changes with zoom level
TKS0053589	Ratings properties on 'op1' symbol do not match SaberBook

Simulink-2-Saber Model Export makefile that generates MAST model cleanup req (STAR 9000130853)

The Simulink-2-Saber Model Export utility, particularly the portion that generated the MAST model wrapper for the RTW compiled c-code (that represented the Simulink model), incorrectly made a MAST model that contained a foreign routine call in the parameter section, passing signal values, which essentially had no values at that time. The parameter section call (mode 1) performed some message reporting, some error checking, and data

file log initialization, however the placement of signal names was incorrect, as this did not load and run in SaberHDL.

This problem has been fixed in Y-2006.06-SP1.

Memory consumption explodes for TLU models with large dataset (STAR 9000130410)

A memory leak has been fixed in the tlu foreign routine in Y-2006.06-SP1. This memory leak was causing an expansion of the Saber process memory during Monte Carlo analyses involving large data file table look-up (tlu) models.

CatiaV5 MCad projection bugs (STAR 9000129450)

In Saber Bundle, there were error messages when placing segments or passives on a Bundle drawing.

Sometimes an error occurred when the “Show Unmatched Items” on the Filters Control Panel was set to Show and an MCAD file was imported to update an existing bundle drawing.

Sometimes an error occurred when placing passives to update an existing bundle drawing from an MCAD import that contained significant differences from the existing design.

These problems have been fixed in Y-2006.06-SP1.

Error message when opening sub-schematic (STAR 9000129239)

If the CVS directory resided in the design or symbol directory, when the design or symbol was opened in Saber Sketch, there was a CVC error .

This has been fixed in Y-2006.06-SP1.

Calclength table function using decimals in length property not working (STAR 9000127273)

In Saber Harness, when using decimal values on the property length on Bundle segments, the lengths were not calculated correctly.

This has been fixed in Y-2006.06-SP1.

Logical wires are invisible after move/zoom operation (STAR 9000127046)

In Saber Harness, if you converted a logical wire to a physical or vice versa, the wire became invisible after doing a zoom operation.

This has been fixed in Y-2006.06-SP1.

Mcad import corrupted in Saber Bundle (STAR 9000126736)

When importing an MCad file generated with Catia V4 E3D the ref property for the E3D connector shells is not put in the shell ref in Saber Bundle. The ref from Catia is put in the mcad_id property.

The problem occurred because importing an older MCAD 1.0 format into Saber Bundle was not done correctly. The value of the ref property in the bundle drawing was suppose to be set to the name of the corresponding ref in the imported MCAD 1.0 file.

This problem has been fixed in Y-2006.06-SP1. The ref property in Saber Bundle drawing elements is now being set correctly after importing an MCAD 1.0 file.

simulink model import (STAR 9000124274)

The Simulink-2-Saber Model Export Utility has been updated to work with Saber 2006.06 release. The Export Utility provided with the Y-2006.06-SP1 release is required to build Saber models that will work the Y-2006.06 release. Saber models produced by this release are not backward compatible with earlier Saber releases. Nor will Saber models built using the Export Utility in earlier versions of Saber work in the Y-2006.06 and future releases.

testify result will change after I clear previous result and run again (STAR 9000123074)

The plotfile on disk currently uses a timestamp with a granularity of one second. Testify simulations can occur at a faster rate than can be shown on the plotfile's timestamp. The problem manifests itself if the simulations defined in the Testify experiments take less than 1 second. As a result, Guide may use an

older version of the plotfile stored in memory, rather than reloading the plotfile from disk into memory.

This problem has been fixed in Y-2006.06-SP1.

Data disappeared during checkout (STAR 9000122287)

The problem was that the error handling in CVC was incomplete. The “obtained lock” information returned by CVS was interpreted incorrectly as an error message. In turn, the CVC operation was interrupted. In the user's case, the CVC Checkin operation was not finished, so the correct data could not be returned when checked out.

This problem has been fixed in Y-2006.06-SP1.

Saber monte carlo fails on Linux (STAR 9000122157)

Saber Monte Carlo and Vary runs fail on Linux because files are not closed properly. Because the files are left open, the Saber process eventually reaches the resource limit for open files and the analyses fail. This problem can also happen when using distributed processing (DIA) for Monte Carlo and Vary runs.

This problem occurs only on the Linux platform. It is fixed in Y-2006.06-SP1.

Adding same shell twice (STAR 9000114201)

In Saber Bundle, if the “To Place” list had more than ten items and they were all marked, when you pressed Apply, they all were placed on the bundle sheet. But the list still showed some shells and if they were marked they were placed a second time.

This problem has been fixed in Y-2006.06-SP1. Now when you click the Apply button, the items placed are cleared from the list.

It is not possible to filter for the complete Instrument harness (STAR 9000114182)

The problem was that the component shell filter operation on a big design took so long that the user felt the operation did not work.

This problem has been fixed in Y-2006.06-SP1. The performance of the existing component shell filter has been improved so that the filter operation on a big design can be completed in an acceptable time interval.

unchanged pasted commands do not appear in the command history (STAR 9000111000)

When a multi-line command was pasted into the command window, all of the commands executed but did not appear in the command history.

This problem has been fixed in Y-2006.06-SP1.

Filter does not clear in table manager (STAR 9000108024)

The filters shown in the Table Tool did not correspond to the filter actually used in the following cases:

- The filters for harness, subharness/assembly were not shown after “Extract Data.”
- The filters for “Entire Design” were not shown initially when the Table Tool was invoked for the first time.

This problem has been fixed in Y-2006.06-SP1.

After run APS - no assemblies from Assembly Tool (STAR 9000108023)

When you ran the APS on one connector, you couldn't get into the Assembly Tool from the Connector Manager -Passive Property Editor field. Before running APS, you could go into the Assembly Tool and choose assemblies. After running APS, it is not possible on any connector

This problem has been fixed in Y-2006.06-SP1.

The APS result includes only the first connector that has been marked (STAR 9000105983)

The root cause was that the information about the selected shells was not processed correctly when there were more than one component shells

selected. This resulted in passing only the first marked shell to the APS module.

The APS module in Y-2006.06-SP1 now receives information about all the selected component shells.

Extract and update on assembly table does not increase number of rows (STAR 9000099670)

When extracting and updating a table, the rows of the table did not update according to the table contents. Therefore, some rows could be missing.

This has been fixed in Y-2006.06-SP1. The table now updates correctly.

Cannot open acroread 7.0 on Linux from Saber (STAR 9000096604)

Saber failed to open acroread 7.0 on the Linux platform when opening Saber documents. This has been fixed in Y-2006.06-SP1.

Problem Opening Symbol and Schematic w/ same name at same time (STAR 9000094535)

A design could not be opened when a symbol with the same name was opened first.

This problem has been fixed in Y-2006.06-SP1.

No Monochrome Print option on Windows. (STAR 9000082291)

The default print color on the Windows platform was color. This has been set to monochrome in the Y-2006.06-SP1 release.

Optimizer of diode tool I-V characteristic does not change I-V parameters (STAR 9000081771)

The functionality of the Model Architect Diode Characterization Tool optimizer has been improved in the Y-2006.06-SP1 release. Additional fields have been added to the optimization target form which allow you to specify an x-axis data range for optimization.

documentation c_friction is missing (STAR 9000072282)

Added the template description for the c_friction model in the Y-2006.06-SP1 release.

line style changes with zoom level (STAR 9000002558)

During the zoom in operation in Saber Sketch, some of the graphics items that were using dashed outline lines were changing to a solid outline. This is fixed in the Y-2006.06-SP1 release.

Similar behavior also existed if you changed the dash outline width. This is also fixed in the Y-2006.06-SP1 release.

Ratings properties on 'op1' symbol do not match SaberBook (TKS0053589)

The ratings properties have been updated in the template descriptions for op1, op3, and op3d models for the Y-2006.06-SP1 release.

The ratings properties for op1h and opfd1 were fixed in a previous release.

Saber® Release Notes for Version Y-2006.06

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These release notes present the latest information about Saber Version Y-2006.06 in the following sections:

- [Supported Environments](#)
- [New Features, Enhancements, and Changes in Y-2006.06](#)
- [Known Problems and Limitations in Y-2006.06](#)
- [Resolved STARs in Y-2006.06](#)

For convenience, these release notes also contain the CosmosScope release notes in the following sections:

- [CosmosScope Release Notes for Version Y-2006.06](#)
- [CosmosScope Release Notes for Version X-2006.03](#)

Supported Environments

This release of Saber is compatible with the platforms and operating systems shown in Table 5.

Table 5 Supported Platforms

Platform	Operating System
SUN (Sparc OS5) 32-bit	Solaris 9 with Shared Library patch 111711-12 or later Solaris 10
HP9000 with PA-RISC 2.0 (HP 8000), 32-bit	HP-UX 11.0 and 11.11 (11i)
PC/Windows, IA-32 (X86), 32-bit	Windows 2000 with Service Pack 3 or higher Windows XP Professional
PC/Linux, IA-32 (X86), 32-bit	Red Hat Enterprise 3.0 with Update 5
PC/Linux, AMD Opteron, 64-bit	Red Hat Enterprise 4.0
IBM RS6000, 32-bit	AIX 5.3

Table 6 shows the supported platforms and programming languages.

Table 6 Platforms and Programming Languages

Platform	C	C++	Fortran
SUN Solaris (Sparc)	5.5 (Sun Studio 8)	5.5 (Sun Studio 8)	7.1 (Sun Studio 8)
HP9000 PA-RISC 2.0 (HP 8000) using HP-UX 11	B.11.11.04	A.03.33	B.11.01.42
PC/Windows	MS Visual .NET	MS Visual .NET	Intel Visual Fortran 9.0 with patch 24
PC/ Red Hat Linux	gcc 3.3.6	g++ 3.3.6	g77 3.3.6
IBM RS6000 AIX	VisualAge 6.0	VisualAge 6.0	xlfcmp 8.1.1.4

Note: To use the `saberld` command on IBM RS/6000 AIX, the C++ compiler specified in Table 6 must be installed and accessible on your system.

Table 7 shows the supported products for co-simulators, framework integrations, and interfaces.

Table 7 Product Matrix for Co-Simulators, Framework Integrations and Interfaces

	OS Solaris 2.8	HP 8000	Windows	Linux	IBM RS6000
Product					
Co-Simulator Interfaces					
Saber/Verilog Co-Sim	LDV 5.1 LDV 5.5 (Cadence IC V5.1)	LDV 5.1 LDV 5.5 (Cadence IC V5.1)	—	LDV 5.5 (Cadence IC V5.1) Note: RHEL 3.0, 4.0	—
ModelSim Co-Sim	6.0d	6.0d	6.0d	—	—
VCS/VCS-MX Co-Sim	7.2, 2005.06-SP1 Note: Solaris 9 only	7.2, 2005.06-SP1	—	2005.06-SP1 Note: Red Hat Enterprise 3.0 only	—
Simulink Co-Sim	—	—	6.1, 6.5, 7.0, 7.0 SP1, 7.0 SP2, 7.0 SP3	—	—

Table 7 Product Matrix for Co-Simulators, Frameway Integrations and Interfaces

	OS Solaris 2.8	HP 8000	Windows	Linux	IBM RS6000
Product					
Frameway Integrations					
Mentor Graphics Falcon Framework	EN2002 with CDP SP3, EN2004, IC2002.3 IC2004.3	EN2002 with CDP SP3, EN2004, IC2002.3 IC2004.3	EN2002 with CDP SP3, EN2004	2005.1 Note: Red Hat Enterprise 3.0 and AMD architecture only	—
Mentor Graphics ePD	—	—	ePD 2004	—	—
Cadence (3.5)	IC 5.1	IC 5.1	—	IC 5.1	—
EDIF (3.4)	Berkeley EDIF 2.0	Berkeley EDIF 2.0	—	Berkeley EDIF 2.0	—
SaberLink/ MATLAB	5.2, 5.3, 6.1, 6.5, 7.0 7.0 SP1, 7.0 SP2, 7.0 SP3	5.2, 5.3, 6.1, 6.5	5.2, 5.3, 6.1, 6.5, 7.0 7.0 SP1, 7.0 SP2, 7.0 SP3	6.1, 6.5	—
Saber Harness Interfaces					
ProE	2001	2001	2001	—	—
CATIA	V5 R14 R15, R16	V5 R14 R15, R16	V5 R14 R15, R16	—	—
Unigraphics	—	—	NX3	—	—

New Features, Enhancements, and Changes in Y-2006.06

Saber Version Y-2006.06 provides new features, enhancements, and changes as described in the following sections:

- [Design File Upgrade to Version 10](#)
- [Style Sheets](#)
- [Multi-level Undo and Redo](#)
- [Design Example Browser](#)
- [Auto-generated Symbols](#)
- [Improved Saber Harness CVC Performance](#)
- [Association Behavior When Moving Passive Elements \(STAR 9000109174\)](#)
- [Saber/Catia Interface Support \(STAR 9000087970\)](#)
- [Catia Interface Passive Insertion Enhancements](#)
- [Assembly Table Columns Switched \(STAR 9000105980\)](#)
- [DIA Enhancements](#)
- [VDA Library](#)
- [Unigraphics to Saber Harness Translator \(UG2SH\) \(STAR 9000042002\)](#)
- [New Models](#)
- [New Component Models](#)
- [Battery Characterization Tool \(STAR 9000116842\)](#)
- [IGBT Characterization Tool](#)
- [New Fortran Compiler for Windows](#)
- [Saber Simulator AC Analysis Supports the Creation of an End Point File \(STAR 9000084788\)](#)
- [Saber Simulator Pole/Zero Report Supports Hz \(STAR 9000084937\)](#)
- [Using Acrobat Reader with the Saber Y-2006.06 Release](#)

Design File Upgrade to Version 10

In the Y-2006.06 release, the design file has been upgraded to version 10. This affects Saber Harness, Saber Bundle and Saber Sketch. The changes in version 10 include the following:

- Added style resource.
- Each element in the database has a new field for its assigned style.

All Saber Harness designs created in a previous release must be upgraded to the latest version using the following procedures before working on them in this release. For additional information, see the following sections:

- [Upgrading Saber Harness Design Files Not Using CVC](#)
- [Upgrading Saber Harness Design Files Using CVC](#)

For Saber Sketch and Saber Bundle designs, the upgrade happens automatically.

Upgrading Saber Harness Design Files Not Using CVC

The following procedure must be completed for each Saber Harness design you want to use in the Y-2006.06 release.

To upgrade Saber Harness design files that do not use CVC:

1. Create a new directory for the Y-2006.06 version of the design.
2. Open the design in the Y-2006.06 release.
3. From the File menu, select Save As.
4. In the Save As dialog box, navigate to the new directory and click Save.

You can now continue working in the design.

Upgrading Saber Harness Design Files Using CVC

The following procedure must be completed for each Saber Harness design you want to use in the Y-2006.06 release.

To upgrade Saber Harness design files that use CVC, administrators must do the following:

1. Have users check in their workspaces using the previous release.

2. To ensure that the workspace includes all of the files associated with the design, in the previous release of Saber Harness, do one of the following:
 - Open the design in an existing workspace and from the Schematic menu, select Version Control > Update.
 - Create a new workspace and open the design in the workspace.Do not use CVC to check out the design.

3. Exit Saber Harness.

4. Create a new directory for the Y-2006.06 version of the design.

5. Rename the Workspace's CVS directory.

The CVS directory is located in the Workspace directory. Later, you can remove the renamed CVS directory once you are sure that the design has been upgraded correctly and you no longer need the directory.

6. Rename the design's repository.

Later, you can remove this repository once you are sure that the design has been upgraded correctly and you no longer need the repository.

7. Using the Y-2006.06 Saber Harness release, save the design to the new directory created in step 4. Do the following:

- a. Open the design in the workspace.
Do not use CVC to check out the design.
- b. From the File menu, select Save As.
- c. In the Save As dialog box, navigate to the new directory created in step 4 and click Save.
- d. Close the design.

8. Using the Y-2006.06 release, store the design in the repository. Do the following:

- a. Open the design saved in the new directory in Saber Harness.
Do not use CVC to check out the design.
- b. From the Schematic menu, select Version Control > Store Design.
- c. Close the design.

9. Have users create their workspace for the design stored in Y-2006.06.

You can now continue working in the design.

Style Sheets

The Y-2006.06 release provides you with the option to change the background and component colors in the Saber Sketch and Saber Harness editors. For more information on style sheets, see the Saber Sketch User Guide.

Saber now provides pre-defined style sheets:

- Color on Black Background (default)
- Color on White Background
- Black on White Background

A style sheet is composed of styles. Each style includes three elements: text style, line style, and fill style. In this release, you can only change the color attribute of these elements.

The Saber style sheets use a similar model as style sheets in text editing tools. When you create a new, custom style sheet, you copy it from an existing style sheet. The base style sheet colors are used until you add or change a style in the custom style sheet. You can override a style in a style sheet by changing the object's color attribute.

When you open a schematic or symbol, the active style sheet is applied to the drawing. If the drawing has a style that is not in the active style sheet, the new style is added to the all of the style sheets.

You can select a variety of objects in your schematic and assign them to a common style. For example, you can select a wire, originally assigned to the Logical Wire style, and a rectangle, originally assigned to the Graphics style, and assign it to a your custom Electrical style.

You can preview your drawing as it will look when you print or export the drawing. Previewing your drawing does not change the color of the objects in the database.

Color Behavior in Pre-Y-2006.06 Drawings

Pre-Y-2006.06 schematics or symbols will use the default style sheet, Color on Black Background, or whatever you've set for the active style sheet.

Objects in your drawings will automatically show colors based on the object type. For example, a logical wire will show the Logical Wire style color.

Objects in your pre-Y-2006.06 drawings that use the default colors will use the colors defined in the styles of the active style sheet. For example, if you have a graphical text object that used the default Pink, then when you open the

drawing in this release with the default style sheet, Color on Black Background, the text will still show Pink. If you change the active style sheet to Color on White Background, the text will change to Blue.

Object that do not use the pre-Y-2006.06 default colors keep their original colors. The custom color is treated as an override to the style. For example, if you changed the color of a graphical text object to Green, then when you open the drawing in this release with the default style sheet, Color on Black Background, the text will show Green. If you change the active style sheet to Color on White Background, the text will remain Green because it overrides the style. To use the style color, you must reapply the style to the object.

Multi-level Undo and Redo

Saber Sketch now supports multi-level undo and redo for all operations. Saber Harness supports the multi-level undo and redo for operations available in Saber Sketch.

Design Example Browser

With the Y-2006.06 release, there is now an easy way to access design examples from Saber Harness and Saber Sketch.

To open the Design Browser:

- From the Tools menu or the icon bar, select Design Examples.

The upper half of the Design Example Browser shows a hierarchical list of design examples organized by application.

The lower half of the Design Example Browser shows a brief description of the selected example.

You can do the following tasks in the Design Example Browser:

- To expand or collapse a folder hierarchy, click on the Plus or Minus icon next to a folder.
- To select an example and show its description, click on an example icon or the example text.
- To install an example, double-click on the example icon or example text. Follow the installation instructions to install the example.
- To view the full documentation for the selected example, click the Help button.

In the Y-2006.06 release, there are four new power converter examples and one vehicle networking example:

- 3ph AC/DC Converter with Brushless DCPM load
- 3ph 230V AC to 28V DC Converter
- 288V to 14V DC/DC Converter
- 3ph 230V AC -> 3ph 115V AC/AC Converter
- LIN Bus

Auto-generated Symbols

In this release, you can automatically generate Saber Sketch symbols from MAST model files, VHDL-AMS model files and hierarchical schematics. Although in previous releases Saber Sketch opened the symbol editor and added ports when you requested a symbol for a hierarchical schematic, and Saber Sketch obtained property information from a new MAST model, this release brings together all these elements and adds some key enhancements. You can now use VHDL-AMS models to create symbols and you'll see improvements to symbol generation from hierarchical schematics. You can easily modify the generated symbol using the new Symbol Editor Assistant.

When you request a symbol for a model file or a schematic, the generated symbol opens in the Symbol Editor Assistant and the Symbol Editor. In the Symbol Editor Assistant, you can easily move ports, rotate the symbol, flip the symbol, change property visibility and save the symbol. Changes you make in the Symbol Editor Assistant immediately show in the Symbol Editor.

Improved Saber Harness CVC Performance

With this version of Saber Harness, support has been added to use the server features of CVS. In order to provide reliability and security, we only support the client-server protocols of CVS with the CVSNT product from March-Hare Pty Ltd.

Only the :local: protocol is supported for the CVS that is shipped with Saber Harness. Only the :sspi: protocol on Windows is supported for the CVSNT that you can get from March-Hare PTY Ltd. Other protocols may work, but they have not been tested. Use them at your own risk.

For optimum performance, use the following configurations:

- Locate all site database files on a local area network (LAN) server.

- Locate each user's workspace on the user's local computer.
- Locate the repository on either a LAN server or a wide area network (WAN) server. Use the appropriate version of CVS for the repository location. See below.

To improve performance, use one of the following CVS versions:

- GNU CVS 1.12.13

Use this version if your repository is located on a LAN server. This is an updated version from the previously provided GNU CVS 1.10.6. For more information, see the following section, ["Using GNU CVS 1.12.13" on page 53](#).

- CVSNT 2.5.02

Use this version if your repository is located on a WAN server. This is a new version of CVS that you can download. For more information, see ["Using CVSNT 2.5.02" on page 53](#).

Note: Some experts recommend that repositories on LAN or WAN servers should always be accessed using a client-server protocol to maximize reliability. With a robustly configured network environment, we have found the :local: protocol sufficient for LAN systems. If you are concerned about the reliability of your network environment, then you should consider using CVSNT for your LAN configuration as well.

New environment variables

The following environment variables were added to configure CVS and CVSNT. For more information on setting these variables, see ["Using GNU CVS 1.12.13"](#) and ["Using CVSNT 2.5.02" on page 53](#).

AI_CVS

Defines the path to the CVSNT executable used by Saber Harness. You do not typically need to set this environment variable if you want to use the CVS executable shipped with Saber Harness. However, if you have another CVS executable in your path, then define this environment variable to point to the CVS executable shipped with Saber Harness.

AI_CVS_ARGS

Specifies additional global arguments for the CVS command. With CVSNT, it is recommended that you use `-z9`.

AI_USE_CVSNT

Indicates to Saber Harness that you are using CVSNT instead of GNU CVS. This is an important indicator because CVSNT requires special handling.

AI_CVSROOT

Specifies the `-d` argument value for CVS. If this is not set, then it defaults to `:local:$env(AI_VCROOT)`.

For CVSNT, use

`:sspi:network_user_id@server_hostname:Repository_Alias`.

Note: Set up your CVSNT configuration so that passwords are not required. If you require passwords, they are stored in workspace files. For more information, see the CVSNT documentation.

Using GNU CVS 1.12.13

To use CVS 1.12.13:

1. If necessary, unset the following environment variables:
AI_CVS
AI_CVS_ARGS
AI_USE_CVSNT
2. Set AI_VCROOT to the directory that contains the repository as seen on the local system.
3. Set AI_CVSROOT to `:local:$env(AI_VCROOT)`.

Using CVSNT 2.5.02

Before you begin, ensure that all users log in to the same domain.

To use CVSNT 2.5.02:

1. The following are tasks that the Administrator must complete:
 - a. Purchase and download CVSNT 2.5.02 from www.cvsnt.org.
 - b. Install CVSNT 2.5.02 on the server where the repository is or will be located.

The repository must be a local disk on the same machine that is running the server.
 - c. Specify a local directory as the repository (for example, `c:/Repository`).

- d. Use CVSNT 2.5.02 to register the repository on the server with the alias, "/RepositoryAlias." For information on registering the repository, see the CVSNT documentation.
 - e. Share the repository directory, allowing all users read and write permissions.
2. The following are tasks that must be completed for each user:
- a. Install the CVSNT 2.5.02 client.
 - b. Map the shared repository directory on the server to a local drive. For example, h:/RepositoryMount.

Note: You must have at least one directory in the path. Do not map the drive to the root folder, such as z:\.

- c. Set the following system variables in the start script:

```
set env(AI_USE_CVSNT) 1
set env(AI_VCROOT) "repositoryMount"
set env(AI_CVSROOT)
    ":sspi:netwk_user_id@server_hostname:alias_name"
set env(AI_CVS) "cvsNT_2.5.02_install_path"
set env(AI_CVS_ARGS) -z9
```

where:

- *repositoryMount* is the mapped local drive of the registered repository (for example, h:/RepositoryMount)
- *netwk_user_id* is the user's network login ID on the domain (for example, fred)
- *server_hostname* is the name of the server hosting the repository (for example, barney)
- *alias_name* is the name of the alias defined on the CVSNT server (for example, /RepositoryAlias)
- *CVSNT_2.5.02_install_path* is the path to the CVSNT 2.5.02 executable (for example, c:/Program Files/CVS Suite/CVSNT/cvs.exe)

For example, using the previous information, the environment variables in the start script are as follows:

```
set env(AI_USE_CVSNT) 1
set env(AI_VCROOT) "h:/RepositoryMount"
set env(AI_CVSROOT)
    ":sspi:fred@barney:/RepositoryAlias"
set env(AI_CVS)
    "c:/Program Files/CVS Suite/CVSNT/cvs.exe"
set env(AI_CVS_ARGS) -z9
```

Association Behavior When Moving Passive Elements (STAR 9000109174)

In previous releases of Saber Harness, when you moved passive elements in bundle drawings, the element would re-associate when placed over a bundle segment. This caused unexpected behavior, rearranging elements and re-associating passive elements exchanged using the parts browser.

With this release, the behavior has changed to the following:

- If you move a passive element with the mouse and it is already associated with a bundle segment, then the association will not change regardless of where you place the passive.
- If you move a passive element with the mouse and it is not associated with a bundle segment, then it will be associated with the bundle segment over which you place it.
- If you move a passive element with the mouse and the ALT key, then the passive element will be associated with any bundle segment over which you place it, even if it was previously associated with a bundle segment.

Saber/Catia Interface Support (STAR 9000087970)

The Saber Harness/Catia V5 interface has been updated to support Catia V5 R16.

Catia V5 R15 and R14 continue to be supported.

Catia Interface Passive Insertion Enhancements

The Catia V5 R16 interface has been enhanced to allow the following actions:

- [Placing BSJs at Splice and Passive Points](#)
- [Enhanced Properties for Traceability](#)
- [Importing Protection Passives](#)
- [Replacing Imported Passive Elements](#)

The MCAD file format has been modified to enable these enhancements. MCAD files have been updated from version 1.0 to version 1.1.

Note:

These features are not supported in the Saber Harness/Catia V5 R15 or the Saber Harness/Catia V5 R14 interfaces.

Placing BSJs at Splice and Passive Points

In the Y-2006.06-2 release, you now have the option to place bundle segment junctions (BSJs) at all splice and passive locations that are not already at BSJ points. Placing BSJs at these locations splits the bundle segment, creating new bundle segments. The new bundle segments and BSJs are uniquely named.

This is a preference you can set before you import the Catia MCAD file into Saber Harness or Saber Bundle.

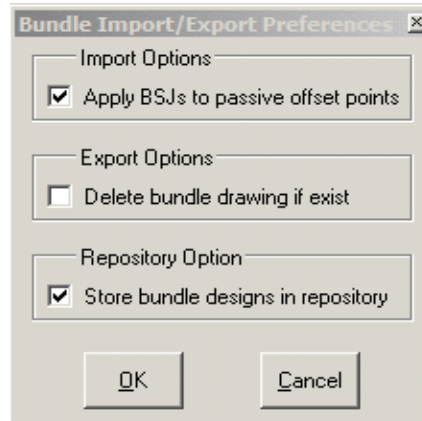
To place BSJs at splice and passive points on import:

1. From Site Manager, in the Preference Settings, click Bundle Import/Export Preferences.

Note: In previous releases, this was the Bundle Export Preferences button.

2. In the Bundle Import/Export Preference dialog box, shown below, check Apply BSJs to Passive Offset Points.

Figure 7 Bundle Import/Export Preference Dialog Box



Enhanced Properties for Traceability

When you import a Catia MCAD file into Saber Harness or Saber Bundle, passives, bundle segments and bundle segment junctions (BSJs) now have the following properties:

Saber Property	Value
part_no	Catia reference part number
mcad_id	Catia instance name
ref	Catia reference designator

If the reference designator is not set in Catia, Saber Harness and Saber Bundle automatically generate a reference designator value.

Importing Protection Passives

Saber Harness and Saber Bundle now correctly import protection-type passives that cover more than one bundle segment. Each protection that spans more than one bundle segment is a shared symbol.

Replacing Imported Passive Elements

When you replace a passive element imported from an MCAD file with a part selected from the Parts Gallery, you now have the option to keep the original instance properties or remove them.

The Parts Gallery has been enhanced to allow replacement of shared symbols. When you replace a shared symbol, only select one symbol. All the symbols

will be replaced. If the shared symbols are instantiated on multiple sheets that you don't have checked out, you'll be prompted to check out them out.

Updating Elements

When you import an MCAD file, you have the ability to show the elements that need updating. You can update the elements in two ways:

- Remove any items that were placed in the bundle drawing from a previous MCAD import that are no longer present in the current MCAD file.
- Ensure that all items are placed in the drawing, the properties for these items are correctly updated from the MCAD file and any required associations are built correctly.

To remove items that are no longer present in the current MCAD file:

1. Import the MCAD file.
2. Open MCAD Projection.
3. On the MCAD toolbar, click the Show/Hide button.
This opens the Filters Control Panel.
4. In the Filters Control Panel, for Unmatched Items, click the Show button.
This selects all of the items in the bundle drawing which are no longer present in the MCAD file.
5. To delete the selected items, use the Delete key or the Delete menu item.

To ensure items are placed, properties updated and associations built:

1. If necessary, delete all the unmatched Items, as previously described.
2. In the Filters Control Panel, select the corresponding Show Needs Update button.
This shows only those items in the bundle drawing that need to have their properties updated.
3. To update the properties and also to make sure that the correct associations are built (for passives and splices only), select the corresponding Place and Update icon on the MCAD toolbar.

This does the following:

- Ensures the element is placed

- Updates the property values for the placed element
- Ensures associations for splices and passives are set properly

Assembly Table Columns Switched (STAR 9000105980)

In Saber Harness, the position of the Description and Issue columns in the Assembly table have been switched.

DIA Enhancements

An improvement has been made to enhance the performance of the Saber distributed iterative analysis feature. The improvement reduces the time required to combine the results of individual distributed runs into a single results plot file.

VDA Library

The VDA library has been added to the list of supported standard packages.

<i>Library</i>	<i>Standard</i>	<i>Content</i>
spice2vhd	VDA	all
fundamentals_vda	VDA	all except q_trpf_vda.vhd

Unigraphics to Saber Harness Translator (UG2SH) (STAR 9000042002)

The UG2SH plug-in to Unigraphics has been updated to work with Unigraphics NX3 and Unigraphics TeamCenter. This plug-in is linked against the NX3 libraries and has only been tested to work with NX3. It works with the Saber Harness W-2004.06, X-2005.09 and Y-2006.06 releases.

The format for the ai_mcad file has been modified to be consistent with X-2005.09 and later splices. This does not cause any compatibility problems, because the W-2004.06 release does not support splices during import of the ai_mcad file.

In addition, part names in NX3 have changed to include the base part name and extended information. For example, an NX2 part 94367303 is represented

in NX3 as 94367303.geo_fin003.001999. To be consistent with part_no used in Saber Harness, only the base part name (for example, 94367303) is used.

To install the UG2SH plug-in, run setup.exe on a machine with NX3 loaded. This installs and configures the environment with the new UG2SH plug-in. In the installation directory the ugnx and ugnx2 directories still exist and contain the plug-ins from previous versions. These previous plug-ins are no longer supported.

New Models

In this release, there are the following new models:

- [Torque Converter Model](#)
- [DC_PM2x Model](#)
- [Alternator Models](#)

Torque Converter Model

The torque converter model enables you, in conjunction with an engine model and a transmission model, to simulate the drive train system.

There are two variations of this model:

- Template tqc_r is a model of a torque converter with rotational angle-type terminals.
- Template tqc_w is a model of a torque converter with rotational velocity-type terminals.

The model is a high-level behavioral model based on table look-up, no friction, damping and inertia. It can be simulated by connecting related models at the impeller or turbine of the torque converter.

This model has the following three modes:

- **Normal behavior.** This behavior is determined by two curves that you provide: one is torque ratio vs. speed ratio between the turbine and the impeller and the other is the capacity factor vs. rotational speed ratio between the turbine and the impeller. In this mode, the turbine always runs slower than the impeller, the efficiency is less than 1, and the output torque is greater than the input torque.
- **External lockup mode.** In the external lockup mode, the turbine is locked up with the impeller in a one-way direction when there is a lockup signal. The clutch is an ideal clutch without transition time. A fixed 1m second is used between the transition from lock and unlock to make the model continuous.

The turbine cannot run slower than the impeller, but it can run faster. In most cases, the turbine speed is the same as the impeller speed. The torque can only flow in one direction through the impeller to the turbine.

- **Internal lockup mode.** In the internal lockup mode, the turbine is locked up with the impeller automatically in a one-way direction when the turbine speed exceeds the impeller speed. The difference between this mode and the external lockup mode is that the torque converter will be locked automatically when the turbine speed exceeds the impeller speed.

DC_PM2x Model

This is a variant of the existing DCPM model. The dc_pm2x model enables you to do thermal transient analysis of a DCPM motor by counting on the motor loss. These losses give rise to heat generation within the motor. As the motor temperature increases, the armature resistance, torque constant, and back EMF parameters change in a way that increases the total power loss and degrades motor performance. If a constant torque output is maintained, the motor may reach a thermal runaway condition, exceed the maximum winding temperature, and burn out. Although there are other parameters that affect temperature, like dynamic friction and the viscous damping, their effect on motor performance is less unless in high-speed motors. These dependencies are not modeled.

The dc_pm2x template models a permanent magnet dc machine that may act as either a motor or generator, depending on how it is connected.

Alternator Models

There are two new alternator models and two component models in this release:

- [Alternator Model](#)
- [Alternator Regulator Model](#)
- [Alternator Regulator Component Model](#)
- [Alternator Diode Bridge Component Model](#)

Alternator Model

The alternator_core template models a 3-phase, wye-connected, symmetrical electro-mechanical generator. As a physical behavioral model it embraces electrical, magnetic, mechanical, and thermal characteristics of a typical salient or cylindrical synchronous machine.

You can implement it as a representation of an automotive alternator in typical charging system scenarios or as a synchronous turbo generator for high power systems.

This model includes the effects of temperature sensitive magnetic saturation. This implies the internal flux couplings are a function of shaft rotational angle and magnetic flux densities and permeabilities of saturable rotor and stator core permeances/reluctances. Incorporation of 3rd harmonic in the output phase voltage is a function of machine saliency.

The model also offers self-excitation effect caused by magnetic remanence. It includes dissipative losses such as copper losses, core losses, running friction, windage, and inertia associated with a typical alternator machine. Rectification of the 3-phase output and field current control are external to this template.

The objective of this model is to provide realistic transient behavior with inclusion of physical ripple and harmonics. This allows accurate assessment of an alternator machine versus AC rectification, and permits investigation of power boost and efficiency schemes. Investigation of what-if scenarios can also be performed due to resonant loads, load dump and transient suppression protection, detailed field current regulator implementations, and more accurate failure analyses (e.g. shorted or open diodes, field winding short). Because power generation devices, such as an alternator, are fundamental to the integrity of the power distribution system, examination of the system performance cannot be carried out with much certainty if these devices are too ideal, for example, capable of providing ample current under operating conditions when physical devices cannot. The goal of more detailed alternator device models are to target and investigate specific phenomenon that impact the system, as opposed to the system performance over an entire drive cycle.

Alternator Regulator Model

The alt_gen template is a high-level model representation of an alternator regulator. Its default characterization is based upon a manufactured after-market alternator regulator device still in production. The model offers constant frequency with variable duty cycle operation, proportional gain with gain saturation and lag element (mimics a real regulator), and an internal free-wheeling diode. It offers the convenience of simple circuit application with minimal characterization, and flexibility of voltage bus implementation - no restrictions on system battery voltage (i.e. 12V or 36V)

Alternator Regulator Component Model

A new component level alternator regulator template of the cs3361 regulator is also available. Features of this component model are:

- Temperature compensated regulation voltage
- Short circuit field protection duty cycle, self clearing
- Stator power up
- Lamp pin to indicate abnormal operating conditions
- Constant frequency with variable duty cycle operation
- Senses ignition start, stopped engine or broken belt condition, under and over-voltage detect
- Drives logic-level power NFET
- Resumes “normal” operation once fault condition ceases
- Use with 12-Volt battery systems only

Alternator Diode Bridge Component Model

This component level lr1120701_bridge template models the 3-phase full-wave diode bridge rectifier implemented in a Hitachi alternator, OEM part number lr1120701.

The diodes within the rectifier assembly were measured in Synopsys' device laboratory and determined to be 50-Amp Zener (avalanche) diodes with 21.5V breakdown voltage. The breakdown for these diodes is rated at 100mA reverse current. This template is fully static thermal, and stress ratings for each diode component were determined by measurement.

New Component Models

This release has the following component models:

- AD8139 low noise rail-to-rail differential ADC driver
- AD8608 low noise opamp
- AD976ABR 16-bit A/D converter
- ADCMP552 high speed PECL/LVPECL comparator
- Alternator regulator
- Alternator diode bridge
- Fairchild ES2d power diode

- L6561 power factor corrector
- LT6200 low noise opamp
- Maxim 4494 opamp
- Phillips BUK765r2_40b n-channel power FET
- Phillips BUK9640 n-channel power FET
- Phillips BYV32EB rectifier diode
- Renesas 2SK1317 1500V n-channel power diode

Battery Characterization Tool (STAR 9000116842)

A characterization tool for the new lead acid battery model `batt_pb_2` has been developed and is in beta release.

This new tool accepts specifications on a lead acid battery and generates a component battery model that meets the specifications within acceptable tolerance.

Instructions are provided for each characterization step. This tool is capable of characterizing a battery automatically. Four characteristics, including self discharge, constant current discharge, transient discharge and transient charge characteristics, are automatically characterized, one after another, to best meet the customer's specifications.

Upon completion, a component battery model will be generated for use in system design.

To access the Battery tool:

1. Start Saber Sketch or Saber Harness.
2. From the Tools menu, select Model Architect.
3. In the Model Architect window, click the Battery tool icon.

IGBT Characterization Tool

This release includes the IGBT characterization tool. The IGBT characterization tool and model are a simplification of the Hefner IGBT model developed by Dr. Hefner of the National Institute of Standards and Technology in cooperation with Synopsys.

You can use the IGBT characterization tool to create IGBT models. The Saber model library provides an intermediate and proven level-1 IGBT model

(igbt1_2.sin) that is easier and more practical to characterize than the Hefner model. To aid in making the characterization process easier for this new model, it was put into the IGBT characterization tool, a dedicated Model Architect tool.

The IGBT characterization tool implements the parameter extraction for the new IGBT model in a step-by-step process to enable you to more easily create component models. You must supply a set of characteristic device data that you can obtain from a variety of sources.

To access the IGBT tool:

1. Start Saber Sketch or Saber Harness.
2. From the Tools menu, select Model Architect.
3. In the Model Architect window, click the IGBT tool icon.

New Fortran Compiler for Windows

Saber uses a different and more recent version of Fortran compiler on the Windows platform. As a result, foreign routines for the Saber and SaberHDL simulators written in the C language can no longer use `__stdcall`.

To use these routines in this release, remove `__stdcall` from any foreign routines, recompile and link into a new DLL. DLLs created for previous releases will not work with this or future releases of Saber.

Saber Simulator AC Analysis Supports the Creation of an End Point File (STAR 9000084788)

The AC analysis now supports the creation of an end point file. This file contains an estimate of the large signal steady state of the design at the end frequency of the AC analysis. The estimate is exact for linear systems.

The large signal steady state estimate may be useful to start the simulation of a switched system close to the actual steady state, for example without having to go through all the startup transients. To do this, run an AC analysis with an end frequency that corresponds to the switching frequency, then use the resulting AC end point file as an initial point file for a TR analysis.

Saber Simulator Pole/Zero Report Supports Hz (STAR 9000084937)

The Saber Simulator `pz_report` command (Pole/Zero Report) now supports displaying frequency data in Hz. To do this, specify the unit to be Hz. The default unit is radians/second (radps).

Additionally, the `pz_report` command now supports sorting poles and zeros based on a key, which must be REAL, IMAG, or one of the values specified for the `pz_report` command with the `ptranslist` or `ztranslist` variables (in Guide, the Columns for Poles or Columns for Zeros). Sorting may be useful, for example, to quickly find the pole with the largest or smallest pole frequency.

Using Acrobat Reader with the Saber Y-2006.06 Release

Viewing PDFs in Acrobat Reader

If you are using a version of Acrobat Reader that is older than version 7, you may see the following message:

This file may contain newer information than this viewer can support. It may not open or display correctly. Adobe recommends that you upgrade to the latest version of our Acrobat products.

The Saber Y-2006.06 documentation does not use any special features and should display correctly. However, we do recommend that you upgrade to the latest version of Acrobat Reader.

Searching the Documentation for Information

A full-text search index is available to help you find information by rapidly searching all Saber manuals at once.

To use the full-text search feature:

- Adobe Reader must be invoked as a standalone application rather than as a plug-in to your web browser.
- Solaris and Linux platforms must have Adobe Reader 7 installed.
- Windows platforms must have Adobe Reader 6 or Adobe Reader 7.

If your system does not meet these criteria, you can still initiate keyword searches with previous versions of Adobe Reader.

Adding and Using a Full-Text Search Index with Adobe Reader 7

If a Saber full-text search index is not available, you might need to add it manually.

To add a and use a full-text search index,

1. Open Acrobat Reader 7 with any Saber PDF.
2. Choose Edit > Search or click the Search button in the toolbar.
The Search PDF pane shows on the right-hand side of the screen.
3. At the bottom of the Search panel, click Use Advanced Search Options.
4. At the top of the Search panel, enter the word or phrase for which you want to search.
5. From the Look In list, choose Select Index.
The Index Selection dialog box appears.
6. If you see Synopsys Saber, Y-2006.06 in the Select Index window, skip to step 10. Otherwise, continue to the next step.
7. Click Add.
8. In the Open Index File dialog box, navigate to the location where your Saber documentation resides.
Typically the documentation is in the
/ <install_location> / doc / pdf_docs directory.
9. Double-click index.pdx.
The Saber Y-2006.06 index is added to the list of available indexes.
If there is more than one index in the list, uncheck the other indexes. If they remain checked, the documents associated with the index will also be searched.
10. Check the Saber Y-2006.06 index and click OK.
The next time you choose Search, Acrobat will remember the Saber Y-2006.06 search index, index.pdx, as a location to search.
11. Click Search.
The results appear in order of relevance in the Results pane. To change the order, select another option from the “Sort by” list.
Click an item in the results list.

For more information about the search capability, see the Acrobat or Acrobat Reader online help.

Known Problems and Limitations in Y-2006.06

This section describes known problems, limitations, and workarounds in Saber Version Y-2006.06.

Can't Load Design in Guide from Frameways (STAR 9000118978)

For Cadence and Mentor Graphics ePD frameways, when you start a stand-alone Guide or Guide with Scope from Saber > Start Saber Guide or Saber > Start Saber Guide with Scope menus, the design does not load in Saber even if a valid netlist is present.

You see the following message:

```
"Cannot find design /test/.../design_name".
```

You might also see this problem in the Mentor Graphics Falcon Framework frameway.

Scripts that make a call to Guide:LoadDesign will fail if you give a full path to Guide:LoadDesign instead of just the design name. For example, the following will fail:

```
Guide:LoadDesign /u/mytest/design_name.sin
```

On the other hand, the following will succeed in starting Guide:

```
cd /u/mytest  
Guide:LoadDesign design_name.sin
```

Workaround

Manually load the design.

Resolved STARs in Y-2006.06

The Synopsys Technical Action Requests (STARs) listed in the following table are resolved in Saber Version Y-2006.06.

Table 8 Resolved Saber STARs

STAR ID	Title
TKS0079614	Paste into/from Saber and Windows Clipboard fails
TKS0050410	Response times very high
TKS0040095	Saber take a long time to update the repository
TKS0059694	Opening sheets after a required update is very slow
TKS0065287	Very long response times and timeouts at checkin of bundle
9000114021	Can't save Experiment if already saved in previous invocation.
9000113564	Get stack trace when adding information on connector passives
9000112939	Obtain errors about repository's lock
9000112126	Saber Bundle crashes switching 2 designs
9000112073	Crash when using close active design
9000109882	Drag & drop to different sheets with different components gives the same component from the "NEW" Parts gallery
9000109174	regroup problem when moving object
9000109161	Problem with emag_coil_tlu.sin
9000106857	CVS lock doesn't disappear
9000103093	Guide with Scope crashes in 2004.12 release.
9000101101	Saber crashes every 10 minutes
9000100181	StateAMS: the condition $((a > b) \vee (a > c)) \wedge (b > c)$ leads to an error message
9000099675	When a new workspace is created the missing symbols window appears
9000096125	Testify: cannot save tests/experiments
9000095187	Saber Bundle crashes in non CVC behavior
9000094578	Data disappears from pass.prop.editor
9000093494	Import data from SDU does not show OK/Cancel & spaces in directory path fails
9000093200	Predefined tests are lost, the experiment is not filled in.
9000091910	Assembly tool corrupt when renaming assembly
9000090209	The Catia reference part number shall be the part number in Saber.
9000089860	chassis model: duplicate reference name
9000088845	Checked in values of .ai_hrndsn file was lost in second check-in
9000088610	wirep model: meter <--> millimeter

Table 8 Resolved Saber STARs (Continued)

STAR ID	Title
9000087026	Shared symbol netlister bug
9000086808	Probe displays wrong results for new design
9000086704	Merge problem for the .ai_hrnsn file when checking in
9000086687	Check in does not work and does not return any error message. Data loss!
9000085485	Saber simulator: bug: missing and inaccurate poles from pole/zero analysis
9000083336	Multiple open designs in SaberBundle
9000081198	Probes in new design give error message from old design
9000081168	don't zoom to fit x-axis when moving or re-sizing probe window
9000080858	Pressing <delete> key after selecting category stack traces or deletes parts
9000080836	Creating new top category causes stack trace and fails to create category
9000078907	Saber crashes on alter
9000074994	simulator selection in sketch does not work properly
9000073117	Can't use shared inline again
9000069645	Assembly selection in PPE
9000062093	Data disappears from design list
9000043982	Problem moving shared inline
9000035906	When renaming a variant in a CVC design, got an assembly error

Paste into/from Saber and Windows Clipboard fails (TKS0079614)

A problem with the clipboard had prevented the copy of text from an external application into a Saber application (including Scope).

This issue has been resolved in Saber Version Y-2006.06.

Poor performance (TKS0050410, TKS0040095, TKS0059694, TKS0065287)

Saber Harness was slow when the repository was installed across a WAN. For additional information on how to improve performance, see [“Improved Saber Harness CVC Performance” on page 51](#).

This issue has been resolved in Saber Version Y-2006.06.

Can't save Experiment if already saved in previous invocation. (STAR 9000114021)

In the previous release of Saber Sketch, saving Experiments that contained the "Plot Signals In Scope" (scopeplot) item could result in an error and corruption of the Experiment data. The following message showed:

```
"Error: Can't read 'Form(value, .scopeplot, outline<name>)':  
  no such element in array"
```

This issue has been resolved in Saber Version Y-2006.06.

Get stack trace when adding information on connector passives (STAR 9000113564)

When adding information to a predefined value on a passive in Saber Harness, a stack trace occurred.

This problem was caused by a special case for which the parameter value was not properly checked. This issue has been resolved in Saber Version Y-2006.06.

Obtain errors about repository's lock (STAR 9000112939)

In Saber Harness, when a design was being worked on by multiple users, sometimes an error message showed an error message indicating that "cvs log" was waiting for the repository to be unlocked by another workspace.

This issue has been resolved in Saber Version Y-2006.06.

Saber Bundle crashes switching 2 designs (STAR 9000112126)

After switching between two workspaces, when you imported data to the workspace first opened, Saber terminated unexpectedly when attempting to close the design.

This issue has been resolved in Saber Version Y-2006.06.

Crash when using close active design (STAR 9000112073)

Saber Harness and Saber Bundle crashed when closing the active design.

This issue has been resolved in Saber Version Y-2006.06.

Drag & drop to different sheets with different components gives the same component from the “NEW” Parts gallery (STAR 9000109882)

In Saber Sketch, when you drag a symbol from one sheet in a design to another, the next drag operation places the first symbol again.

A problem with the drag-and-drop operation from Parts Gallery into schematic s has been resolved in Saber Version Y-2006.06.

regroup problem when moving object (STAR 9000109174)

In previous releases of Saber Harness, when you moved passive elements in bundle drawings, the element would re-associate when placed over a bundle segment. This caused unexpected behavior, rearranging elements and re-associating passive elements exchanged using the parts browser.

For more information, see [“Association Behavior When Moving Passive Elements \(STAR 9000109174\)” on page 55.](#)

This issue has been resolved in Saber Version Y-2006.06.

Problem with emag_coil_tlu.sin (STAR 9000109161)

An internal non-linear inductance calculation error has been resolved in Saber Version Y-2006.06. This will impact previous results with this template, which were incorrect.

CVS lock doesn’t disappear (STAR 9000106857)

When two users tried to check in designs at the same time, the lock was not released appropriately after the first check in completed.

This issue has been resolved in Saber Version Y-2006.06.

Guide with Scope crashes in 2004.12 release (STAR 9000103093, 9000101101)

Upgrading to the latest Synopsys license file format could cause Saber applications to quit unexpectedly.

This issue has been resolved in Saber Version Y-2006.06.

StateAMS: the condition ((a>b)|(a>c))&(b>c) leads to an error message (STAR 9000100181)

The StateAMS expression compiler had two problems:

- Valid variables named i0 and j0 were treated as zero.
- Valid conditional statements such as ((a>b)|(b>c))&(a>c) were causing a syntax error.

These issues have been resolved in Saber Version Y-2006.06.

When a new workspace is created the missing symbols window appears (STAR 9000099675)

In Saber Harness, when a new workspace was created the missing symbols window appeared even though the symbols were not missing.

This issue has been resolved in Saber Version Y-2006.06.

Testify: cannot save tests/experiments (STAR 9000096125)

It was not possible to save the tests that were defined in Testify. Therefore it was almost impossible to use FMEA in Saber.

In release 2005.09, the test setup data in the Testify tool was not saved with the FMEA/Testify file. In release 2004.12, they were saved in a separate form file (extension ai_frm). The automatic loading and saving of the forms introduced in release 2005.09 filtered out the experiment data from the form file causing the test setup data to be lost.

This issue has been resolved in Saber Version Y-2006.06 by saving the test setup data directly in the FMEA/Testify file. This provides a better compartmentalizing between Forms (ai_frm), Experiment Editor (ai_exp) and Testify data (ai_tst). Backward compatibility is ensured between release 2004.12 and 2006.06: when opening a FMEA/Testify file created in 2004.12 or earlier, the 2006.06 tool fetches the test setup data in the form file.

Saber Bundle crashes in non CVC behavior (STAR 9000095187)

In a non-CVC stand alone Saber Bundle flow, Saber Bundle crashed if it was not closed before an import was made.

This issue has been resolved in Saber Version Y-2006.06.

Data disappears from pass.prop.editor (STAR 9000094578)

In Saber Harness, passive data was lost without warning in the following ways:

- The passive modifications were lost if there were CVC failures when the design was checked in.

This problem has been resolved in the Y-2006.06-3. You will see an error message, enabling you to manually correct the design.

- Auto Passives (where the auto field was marked) were removed after APS was run. The auto passive data was not qualified according to the current APS rules. However, the passives were removed without notification.

This issue has been resolved in Saber Version Y-2006.06. Passives that are removed after running APS will now be listed in the APS report.

Import data from SDU does not show OK/Cancel & spaces in directory path fails (STAR 9000093494)

In the Scanned Data Utility, there were two problems with the import data function:

- You could not open an *.ai_dat file located in a directory with a space in it
- When you opened an *.ai_dat file, you were prompted to verify the axis scale and range. This window did not have the OK or Cancel buttons showing. You had to stretch the window in order to make them appear.

These issues have been resolved in Saber Version Y-2006.06.

Predefined tests are lost, the experiment is not filled in. (STAR 9000093200)

In Testify, loading a predefined .ai_tst file loaded only the test name (in the Test Setup tab, the Test List is filled in) but did not load the test commands/definitions (in the Test Setup tab, the Selected Test was empty).

In release 2005.09, the test setup data in the Testify tool was not saved with the FMEA/Testify file. In release 2004.12, they were saved in a separate form file (extension ai_frm). The automatic loading and saving of the forms introduced in release 2005.09 filtered out the experiment data from the form file causing the test setup data to be lost.

This issue has been resolved in Saber Version Y-2006.06 by saving the test setup data directly in the FMEA/Testify file. This provides a better

compartmentalizing between Forms (ai_frm), Experiment Editor (ai_exp) and Testify data (ai_tst). Backward compatibility is ensured between release 2004.12 and 2006.06: when opening a FMEA/Testify file created in 2004.12 or earlier, the 2006.06 tool fetches the test setup data in the form file.

In addition to the previous problem, the following two issues have been resolved in Saber Version Y-2006.06:

- In Testify, the Save command now works as expected. In release 2005.09 and earlier, after saving data in A.ai_tst and then opening B.ai_tst, the Save command was saving the data in A.ai_tst instead of the expected B.ai_tst.
- Interaction problems between Testify and the Experiment Editor have been addressed, such as untimely popup messages prompting you to save experiment data after a Save in the experiment editor.

Assembly tool corrupt when renaming assembly (STAR 9000091910)

When you rename an assembly in the default subharness, that subharness becomes corrupt, making it impossible to add new assemblies to it.

This issue has been resolved in Saber Version Y-2006.06.

The Catia reference part number shall be the part number in Saber. (STAR 9000090209)

Catia generates reference names for passives, bundle segments and bundle segment junctions that are more than ten characters long. However, DSI only accepts names with a maximum of ten characters. The names were manually corrected. However, when importing updated information, the links between existing passives, bundle segments and bundle segment junctions were lost, causing data to be lost.

This issue has been resolved in Saber Version Y-2006.06. Now, when importing to Saber Bundle, if the reference value is more than ten characters long, it will be modified to ensure that it is less than ten characters.

chassis model: duplicate reference name (STAR 9000089860)

The Saber Harness netlister crashes with the following error message when the same gnd symbol is used more than once in a chassis model:

```
*** ERROR "EXT_DUP_INST_NAME" *** Instance name 'GND_M6' in  
schematic ' Left_Front_Door' is a duplicate.
```

This issue has been resolved in Saber Version Y-2006.06.

Checked in values of .ai_hrnsn file was lost in second check-in (STAR 9000088845)

An error was encountered when adding and removing some assemblies in a subharness in assembly tool. After the check-in, the changes did not appear in the .ai_hrnsn file. Specifically, the error appeared when you:

1. Checked out a schematic sheet and the assembly data (as well as the .ai_hrnsn file),
2. Modified the .ai_hrnsn file (to workaround the problem described in STAR 9000086704), and checked in the assembly data.
3. Checked the repository file .ai_hrnsn,v file. At this point, the changes were still present.

When you checked in the schematic sheet, the .ai_hrnsn file was modified back to its original status.

This problem was caused by the manual edit workaround when attempting to overcome the problem described in STAR 9000086704. Since STAR 9000086704 is resolved in this patch, there is no longer a need for this workaround. As a result, this issue is resolved in Saber Version Y-2006.06.

wirep model: meter <--> millimeter (STAR 9000088610)

The unit conversion from millimeter to meter was not correct in the wirep template.

This issue has been resolved in Saber Version Y-2006.06.

Shared symbol netlister bug (STAR 9000087026)

The physical netlist generated by Harness showed an incorrect connection or crashed. This port connections problem for the shared symbol with the physical netlist has now been addressed.

This issue has been resolved in Saber Version Y-2006.06.

Probe displays wrong results for new design (STAR 9000086808)

Plotfiles remained open when you opened a new design in Saber Sketch, resulting in the probe window showing results from an older schematic, not the active one.

This issue has been resolved in Saber Version Y-2006.06. Plotfiles used for probes in Saber Sketch are now closed when a new design is opened or made active. This ensures that probes will, by default, show results only for the current design. If desired, results for another design may be displayed in a probe by manually opening the appropriate plotfile.

Merge problem for the .ai_hrnsn file when checking in (STAR 9000086704)

A problem arose with a renamed bundle drawing at check-in, even though only schematic sheets had been checked out. This was caused by another user performing a rename assembly in the assembly tool and checking in the changes. The schematic user's .ai_hrnsn and assembly data file was not updated, and at check-in, the old version of these files were checked in on top of the latest version. This problem was caused by the assembly tool check in process and the update operation.

This issue has been resolved in Saber Version Y-2006.06.

Check in does not work and does not return any error message. Data loss! (STAR 9000086687)

In Saber-Harness 2005.09, the errors from CVS were ignored during the execution of a CVC operation. Users were not notified of the errors and the CVC operation was considered successful. This could cause data loss if users continued their work after the errors occurred.

This issue has been resolved in Saber Version Y-2006.06. CVS errors are captured during CVC operations and users are notified of these errors. The CVC operation is not considered successful.

Saber simulator: bug: missing and inaccurate poles from pole/zero analysis (STAR 9000085485)

AC analysis shows resonances, but pole zero analysis does not have a pole corresponding to those peaks.

This issue has been resolved in Saber Version Y-2006.06. Poles and zeros are now computed using a new and improved routine that provides better numerical accuracy.

Multiple open designs in Saber Bundle (STAR 9000083336)

In the Saber releases V-2004.06 and earlier, it was possible to open multiple designs because Bundle drawings were a sheet in the harness design. However, from X-2005.09 and forward, where Saber Bundle is its own tool, where each drawing is its own design with links to the Harness design, this is not possible. If you opened multiple designs in X-2005.09, you get stack traces and it could not work.

Saber Bundle now supports multiple designs.

This issue has been resolved in Saber Version Y-2006.06.

Probes in new design give error message from old design (STAR 9000081198)

Plotfiles remained open when you opened a new design in Saber Sketch, resulting in error messages about the previous design for probes on the new design.

This issue has been resolved in Saber Version Y-2006.06. Probe plotfiles are now closed when a new design is opened in Saber Sketch.

don't zoom to fit x-axis when moving or re-sizing probe window (STAR 9000081168)

In Saber Sketch, if the X axis was zoomed in on a probe and you moved the probe, the X axis changed back to Zoom to Fit.

This issue has been resolved in Saber Version Y-2006.06. When a probe is moved in Saber Sketch, the current view is now maintained.

Pressing <delete> key after selecting category stack traces or deletes parts (STAR 9000080858)

In Saber Sketch, if you selected a category in Parts Gallery and pressed the Delete key, you received a stack trace. If you selected a part, collapsed all the nodes, minimized Parts Gallery, and then later selected a category and pressed the Delete key, the part you originally selected was deleted.

This issue has been resolved in Saber Version Y-2006.06. You can no longer use the Delete key to delete the active part or active category in Parts Gallery.

To delete a part or a category, use the Delete command available from the pop-up menu.

Creating new top category causes stack trace and fails to create category (STAR 9000080836)

A stack trace error occurred when creating a new top-level category in Parts Gallery.

This issue has been resolved in Saber Version Y-2006.06.

Saber crashes on alter (STAR 9000078907)

A defect was fixed in the Saber simulator that could cause an access violation when altering deeply nested structures containing arrays.

This issue has been resolved in Saber Version Y-2006.06.

simulator selection in sketch does not work properly (STAR 9000074994)

In Saber Sketch when the selected simulator was Saber and you switched the simulator of choice to SaberHDL, occasionally not all of the menus were correctly switched.

A latency problem when switching the active simulator caused the analysis forms to be out of sync with the selected simulator.

This issue has been resolved in Saber Version Y-2006.06.

Can't use shared inline again (STAR 9000073117)

After removing a shared inline symbol, couldn't share them again.

This issue has been resolved in Saber Version Y-2006.06.

Assembly selection in PPE (STAR 9000069645)

A stack trace occurred when editing a passive property on symbols in Saber Version X-2005.09.

This issue has been resolved in Saber Version Y-2006.06.

Data disappears from design list (STAR 9000062093)

In Saber Harness, data disappeared from the design list. This occurred when access to the repository was lost after the design file lock was generated and before the design list was retrieved to the workspace.

This issue has been resolved in Saber Version Y-2006.06.

Problem moving shared inline (STAR 9000043982)

In Saber Harness, there was a problem moving a shared inline connector from one sheet to another. The Symbol > Shared Symbol > Remove command didn't work on shared inline connectors. It was not possible to use the Undo command either.

This issue has been resolved in Saber Version Y-2006.06. If the shared inline symbols has three instances, when you use Symbol > Shared Symbol >

Remove on one instance, the other two shared instances keep their ref values. The Undo command also works now.

When renaming a variant in a CVC design, got an assembly error (STAR 9000035906)

In the Saber Harness Assembly tool, variants could be changed without checking out the assembly database. This potentially corrupted the assembly database.

This issue has been resolved in Saber Version Y-2006.06.

CosmosScope Release Notes for Version Y-2006.06

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These release notes present the latest information about CosmosScope Version Y-2006.06 in the following sections:

- [Supported Environments](#)
- [New Features, Enhancements, and Changes in Y-2006.06](#)
- [Resolved STARs in Y-2006.06](#)

Supported Platforms and Operating Systems

This release of CosmosScope is compatible with the following platforms and operating systems.

Table 1 Supported Platforms

Platform	Operating System
SUN (Sparc OS5) 32-bit	Solaris with Shared Library patch 111711-12 or later
HP9000 with PA-RISC 2.0 (HP8000), 32-bit	HP-UX 11.0 and 11.11 (11i)
PC/Linux, IA-32(x86), 32-bit	RedHat Enterprise 3.0 with Update 5, RedHat Enterprise 4.0, SUSE 9.0
PC/Linux, AMD Opteron, 64-bit	
IBM RS6000, 32-bit	AIX 5.3
PC/Windows, IA-32(x86), 32-bit	Windows 2000 with Service Pack 3 or higher, Windows XP Professional

The following compilers were used for the associated platforms:

Table 2 Platforms and Compilers

Platform	C	C++	Fortran
SUN Solaris (Sparc)	5.9	5.9	5.9
HP9000 PA-RISC 2.0 (HP8000) using HP-UX 11	B.11.11.04	A.03.33	B.11.01.42
PC/Red Hat Linux	gcc 3.3.6	g++ 3.3.6	g77 3.3.6
IBM RS6000 AIX	VisualAge 6.0	VisualAge 6.0	xlfcmp 8.1.1.4

Table 2 *Platforms and Compilers*

Platform	C	C++	Fortran
PC/Windows 2000	MS Visual .NET	MS Visual .NET	Intel Visual Fortran 9.0 with patch 24

New Features, Enhancements, and Changes

CosmosScope Version Y-2006.06 provides new features, enhancements, and changes as described in the following sections:

- [Updated .mask File Format](#)
- [New Supported File Formats](#)
- [Matlab R14 SP3 Support](#)
- [Shooting Newton File Support](#)
- [Setting Graph Preferences for Multiple Users](#)
- [Signal Display Highlight Enhancement](#)

GUI Enhancements

The GUI (Graphical User Interface) is updated in this release to help you work more efficiently and effectively. The following major GUI changes are in this release:

- Two new main menu items: the **Signal** menu and **Axis** menu.
 - The **Signal** menu includes several menu items that used to reside in the **Graph** menu. You can change the signal attributes and appearance with the new **Signal** menu items.
 - The **Axis** menu also includes several menu items that used to reside in the **Graph** menu. You can set axis attributes and change the axis scale and view with the new **Axis** menu items.

Both menus are also available as pop-up menus when you right-click a signal or axis in the graph window. See the *CosmosScope Reference Manual* for more information.

- Combined preferences for the following CosmosScope functions:
 - Display
 - XY
 - Signal
 - Graph
 - Reader
 - Signal Manager
 - Measurement
 - Application
- Reorganized menus and forms

Plotfile Location and File Extension Display

CosmosScope can now display the path of a plotfile in the status bar, which appears at the bottom of the main window. Plotfile paths appear in the following instances:

- When a signal is highlighted. If the path is too long, CosmosScope displays only the last part of the path that is closest to file name (for example, `...ir1/dir2/dir3/filename`).
- When your mouse cursor moves over the plotfile names in the signal manager. If the path is too long, CosmosScope displays only the last part of the path that is closest to file name (for example, `...ir1/dir2/dir3/filename`).

Choosing the “Use file extension as name prefix” preference inserts the plotfile file extension before the signal label on the graph (for example, `tr0:v(out)`). This preference is located in the Display tab of the Scope Preferences, which is accessible from **Edit > Preferences...** .

Matlab R14 SP3 Support

The SaberLink interface with CosmosScope now supports Matlab R14 SP3 on the Windows and Sun platforms.

Shooting Newton File Support

CosmosScope now supports *.snac and *.snpn shooting newton files. They are handled as *.hb and *.pn files.

Setting Graph Preferences for Multiple Users

To set up Graph preferences for multiple users, create a common .scope_user file, then place it in a project directory accessed by all users and set the `AI_SITE_PATH` to this directory (either individually or in a global user setup file).

Signal Display Highlight Enhancement

Signals can now be highlighted by placing your mouse cursor on either the signal displayed in the graph region or the name of the signal in the legend. These options are available in the Display tab, which you can access by choosing **Edit > Preferences...**

Resolved STARs

The Synopsys Technical Action Requests (STARs) listed in the following table are resolved in CosmosScope Version Y-2006.06.

Table 9 Resolved CosmosScope STARs

STAR ID	Title
9000084958	Plotfiles can now display file path information in the status bar at the bottom of the CosmosScope main window.
9000093203	Using the <code>pf:write</code> command to write a waveform to a plotfile that is created by the calculator did not work. This is now fixed.
9000105595	A core dump occurred when a Point to Point measurement was applied to a multi-member signal when using the "Visible X and Y range only" option in the Measurement Tool form. This problem was a result of setting this option and then zooming into the first segment of the signal that was not visible. This problem is now fixed.
9000108380	A stack trace erroneously appeared when moving one of two relative trace markers. This problem is now fixed.

Table 9 Resolved CosmosScope STARs (Continued)

STAR ID	Title
9000108866	<p>When a plotfile was reloaded and a simulation was still running, the signal data point was displayed with triangle symbols when either no data point or only 1 data point was produced. Signal points were displayed with triangle symbols even after more data points were produced. This problem is fixed in this release.</p> <p>Also, the reload function was broken in 2006.03. This is fixed in this release as well.</p>
9000109487	The core dump that occurred when applying the “To Time Domain” option to a signal from an *.hb file is now fixed.
9000111399	When opening a plotfile, CosmosScope now flattens analog waveforms (reduces dimension) if they only contain 1 point per segment, regardless if a digital waveforms is in a plotfile.
9000113749	Two new shooting newton files, *.snac and *.snpn, are now supported as input to CosmosScope. They are handled as *.hb and *.pn files.
9000113770	The FFR API FSDB library (version 4.1) is now supported.
9000114415	Choosing “Zoom to fit” on the Y Axis only zoomed in partially. This problem is now fixed.
9000114601	Incorrect Crossing Measurement results were calculated when the crossing point was at a x value that also had multiple y values on either or both of the measured waveforms. This problem is now fixed.
9000116182	When first invoking CosmosScope, multiple graph windows all titled Graph0 appeared, although only one of these windows was usable. This problem is now fixed.

CosmosScope Release Notes for Version X-2006.03

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These release notes present the latest information about CosmosScope Version X-2006.03 in the following sections:

- [New Features, Enhancements, and Changes in Y-2006.06](#)
- [Resolved STARs in Y-2006.06](#)

New Features, Enhancements, and Changes

CosmosScope Version X-2006.03 provides new features, enhancements, and changes as described in the following sections:

- [Eye Diagram Enhancement](#)
- [Updated .mask File Format](#)
- [X Axis Changing Enhancement](#)
- [Default X Axis Setting Enhancement](#)
- [New Supported Matlab Versions](#)
- [“All Plotfiles” File Type Filter Enhancement](#)
- [Support for Concatenating FSDB Files](#)
- [Graphical Point Reduction Enhancement](#)
- [New Supported File Formats](#)

Eye Diagram Enhancement

A new measurement option, Jitter Measurement, is added to the Measurement Menus under Time Domain, as well as a new option added to the Eye Diagram Measurement dialog box. See the *CosmosScope Reference Manual* for more information.

Updated .mask File Format

The .mask file has the following new format:

```
FORMAT_VERSION=1
hex_MASK X1 X2 X3 Y1 Y2 Y3
rec_MASK X1 X2 X3 X4 Y1 Y2 Y3
dia_MASK X1 X2 X3 Y1 Y2 Y3
...
```

The first line in the file must be the format version number. The current version number is 1. The order of the data in Diamond Mask data line is changed from dia_MASK X1 X2 Y1 Y2 Y3 X3 to dia_MASK X1 X2 X3 Y1 Y2 Y3.

You can still import older .mask file versions that you used before this release.

X Axis Changing Enhancement

For analog signals in HSPICE, HSPICE Meas, and Saber pl type plotfiles, you can now change the X axis in the Signal List window.

Default X Axis Setting Enhancement

A new preference is added in the Reader tab of the CosmosScope preferences that allows you to set the default X axis. CosmosScope now reads and displays the waveform data according to that preference. Choose **Edit > Scope Preferences...** to access this new preference.

New Supported Matlab Versions

Matlab R14, R14 Service Pack 1, and R14 Service Pack 2 (Version 7.0 for all) is supported on the Windows and Sun platform versions in the SaberLink Interface with CosmosScope.

“All Plotfiles” File Type Filter Enhancement

Choosing “All Plotfiles” as the file type filter in the **File > Open > Plotfiles...** browser now displays all file types that CosmosScope can recognize and open.

Support for Concatenating FSDB Files

A new preference is added to the Scope Preferences for the FSDB Reader: Concat Split Files or Do Not Concat Split Files. The default is to concatenate the split files. A split file is a file larger than 2GB, where the first file is named filename.fsdb and the split file is named filename_1.fsdb.

Also, a new command is added to the Calculator for concatenating two waveforms into a single waveform. The command is accessible from the **Wave** button and is called Concat. The Concat command takes the waveform in the X register and concatenates it to the waveform in the Y register. If the waveforms have the same name, the resulting waveform also has that name. If the waveforms have different names the resulting waveform are named using this format: `concat (wfname1, wfname2)`.

Graphical Point Reduction Enhancement

A new option called “Signal Draw Point Reduction” is added to the Display Tab in the Graph Preferences, which allows you to determine when the graphical point reduction algorithms are run on the waveform. The default value is 10,000, which means that any waveform with 10,000 or more points is passed through the point reduction algorithms and the unnecessary points are removed. This only effects the graphical display of the waveform and does not change the waveform values passed to the measurement routines. To see all points of the waveform, set the threshold value to 0.

Note: For very large waveforms, setting the threshold to 0 will cause an increase in memory usage and time it takes to draw the waveform on the graph.

New Supported File Formats

CosmosScope can now recognize and open the following new file formats:

- HSPICE RF HBLIN output (*.h1*)
- HSPICE DC Match and DC Sense output
- HSPICE Monte Carlo output (*.mcs, *.mca, and *.mct)

Resolved STARs

The Synopsys Technical Action Requests (STARs) listed in the following table are resolved in CosmosScope Version X-2006.03.

Table 10 Resolved CosmosScope STARs

STAR ID	Title
TKS0064634	The “All Plotfiles” file type filter option is added with the other supported file types found in the File > Open... dialog box. Choosing “All Plotfiles” shows all the supported file types that CosmosScope can recognize and open.
TKS0074104	A preference is added for the HSPICE measurement file reader that allows you to set the default x axis to either “index” or the swept parameter.
9000014381	Matlab R14, R14 Service Pack 1, and R14 Service Pack 2 (Version 7.0 for all) is supported on the Windows and Sun platform versions in the SaberLink interface with CosmosScope.
9000044452	CosmosScope now supports the HSPICE RF HBLIN analysis output files (*.h10) and related touchstone files.
9000046564	You can now change the X axis for analog signals in the Signal List window.
9000068985	A new preference is added to the Scope Preferences for the FSDB Reader, which allows you to concatenate split FSDB files.
9000077105	The first line of .mask files now specifies the mask file format version.
9000083124	Eye diagrams are now trimmed at the end of the cycle period time.
9000083665	CosmosScope core dumped when opening multiple tones HSPICE RF envelope files. This problem is now fixed.
9000084787	The Match button in the Signal Manager and Signal List windows did not plot the signals in the correct views for complex waveforms. This problem is now fixed.
9000085161	You can now delete all the measurements on a graph by selecting Graph > Delete All Measurements from the CosmosScope GUI menu bar.
9000085270	Point to point measurements failed in the digital region (Trace Region Mode) if either of the two signal was a constant. This problem is now fixed.
9000085443	In previous releases, selecting multiple signals in the digital region with the <mouse button + shift key> did not work when more than 10 signals existed in a region. This problem is now fixed.
9000086204	The VCD reader now supports VCD files that do not contain the date, version, and timescale header information.
9000086609	The Ref. Delay Level field in the Delay Measurement dialog box now is called “Ref. Level”.

Table 10 Resolved CosmosScope STARs

STAR ID	Title
9000086627	When using the Vertical Marker Measurement function to apply the Vertical Marker Measurement to all the signals on a current graph twice, a failure occurred during the second measurement. This problem is fixed in this release.
9000087030	CosmosScope now supports the DC match and DC sense waveforms in HSPICE output files.
9000087838	The values that appear in the Measurement Results form are now updated correctly when Vertical Markers are moved.
9000089873	<p>You can now create scripts for all the following RF Tool items:</p> <ul style="list-style-type: none"> ▪ Point Trace ▪ Noise Circle ▪ Stability Circle ▪ Operating Power Gain Circle ▪ Available Power Gain Circle ▪ VSWR circle ▪ Parameter Conversion
9000089874	<p>The following enhancements are included in this STAR:</p> <ul style="list-style-type: none"> ▪ Smith Charts now include pop-up segment information when you move your mouse over the waveform on a graph. To enable this feature, select “Waveform and Legend” for “signal highlight on” in the Graph Preferences. ▪ For all graph types, if the signal is a multi-member signal, you can get pop-up segment information even if the signal only has one member. ▪ You can now choose “Members...” from the pop-up menu that appears when right-clicking a signal name in the legend, even if a multi-member signal has only one member. ▪ VSWR circles now have names with the VSWR value from this release. For example: VSWRout=1.4 or VSWRin=1.9.
9000090253	<p>The measurement results from the following RF Tool items are automatically refreshed when the plot file is reloaded:</p> <ul style="list-style-type: none"> ▪ Point Trace ▪ Noise Circle ▪ Stability Circle ▪ Operation Power Gain Circle ▪ Available Power Gain Circle ▪ VSWR Circle ▪ Parameter Conversion
9000090259	The noise figure and power gain ratio waveforms are now set to be of type “power” so that the conversion to the dB view uses the correct calculation factors.

Table 10 Resolved CosmosScope STARs

STAR ID	Title
9000090280	CosmosScope miscalculated noise circles when using the RF Tool. This problem is now fixed.
9000090575	CosmosScope now supports the following HSPICE Monte Carlo analysis result measurement files: *.mcs, *.mca, and *.mct.
9000091709	Unexpected Ref. Trigger results of Delay Measurements occurred in CosmosScope. This problem is now fixed.
9000094496	A new option called "Signal Draw Point Reduction" is added to the Display Tab in the Graph Preferences, which allows you to determine when the graphical point reduction algorithms are run on the waveform.
9000100903	An error occurred when a missing variable called "lseg" that appeared when apply DeltaX measurement on a multi-member waveform. This problem is now fixed.
9000102193	CosmosScope now supports HSPICE RF Shooting-Newton analysis results. The following file extensions are supported: <ul style="list-style-type: none"> ▪ .sn0 for time-domain data (same format as .tr0) ▪ .snf0 for frequency-domain data (same format as .hb0) ▪ .snft0 for fft'd time-domain data (same format as .ft0) ▪ .msn0 for shooting-Newton measurements (same format as .mt0)
9000104210	The problem of Point to Point measurement at the same x value for both signals is fixed.

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