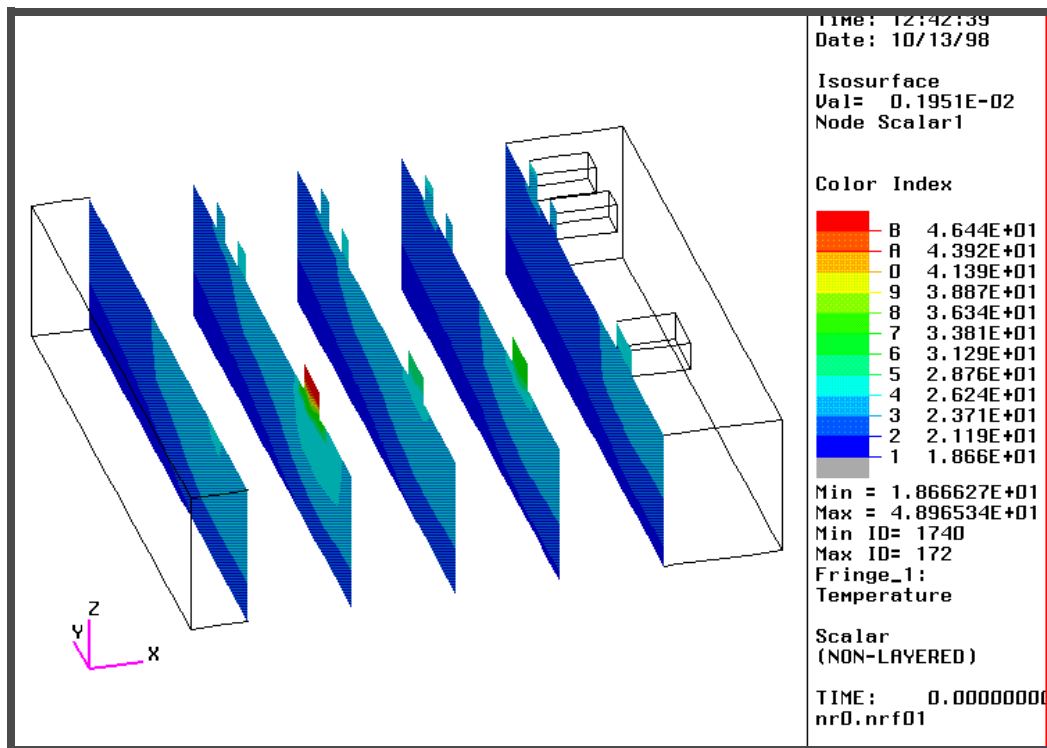


## WORKSHOP 18

# *Post-processing the Hybrid Microcircuit Results with Insight*



### Objective:

- In this exercise you post-process the results of the hybrid microcircuit analysis using Insight tools.



## Model Description:

In this exercise you will reopen the hybrid microcircuit database which now includes results data. You will use the **Insight** post-processing tools to enhance the presentation of the available results.

Two isothermal surfaces will be generated which will provide a three dimensional view of the temperature field within the model. Also a series of planes will be created to expose the interior pattern of temperatures.

## Exercise Overview:

- Open the existing database named **microcircuit.db**.
- Use **Viewing/Named View Options...** and **Viewing/Transformations...** to change to an X-Z view.
- With **Display/Entity Color/Label/Render...** change render style to hidden line and use **Transformations...** to readjust display to a better point of view for results.
- Use **Insight** to create an **Isosurface Tool** with which to view isothermal surfaces contained within the model.
- Use **Insight** to create a second **Isosurface** which will define 5 display planes through the model on which fringe results will be displayed.
- **Quit** MSC.Patran.

## Exercise Procedure:

### Open an existing database

1. Open the existing database named **microcircuit.db**.

Within your window environment change directories to the **microcircuit.db** working directory. Run MSC.Patran by typing **p3** in your xterm window.

Next, select **File** from the *Menu Bar* and open the existing microcircuit database.

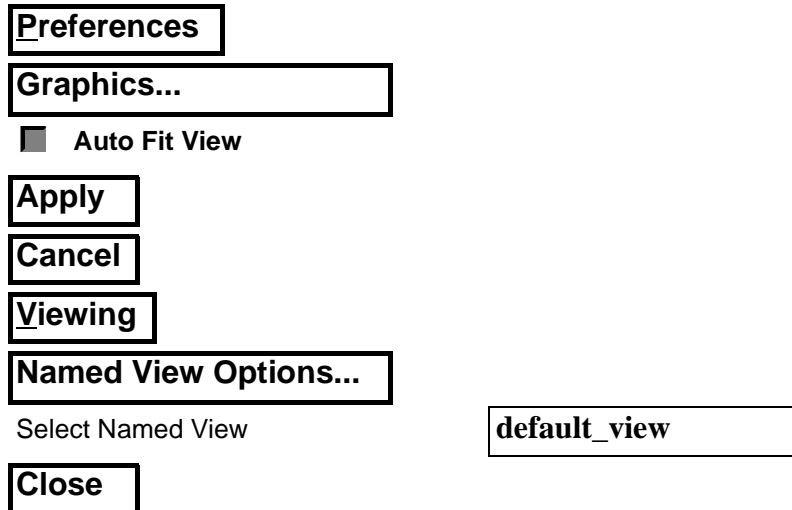


MSC.Patran will open a Viewport and change various *Main Form* selections from a ghosted appearance to a bold format.

### Change to an X-Z view

2. Change the view to an X-Z view. (This step can also be accomplished simply by selecting the Tool Bar *Bottom view* icon).

Select **Viewing** from the *Menu Bar* to change to a **default\_view** of the model hybrid\_fem entities.



Select **Viewing** from the *Menu Bar* and use **Transformations...** to adjust the display to an X-Z view. When the rotation increment is defined use the -X rotation icon to complete the X-Z view.

**Viewing**

**Transformations...**

**Options...**

Rotation increment (deg)

90 <use slider bar>

◆ Screen Relative

**OK**

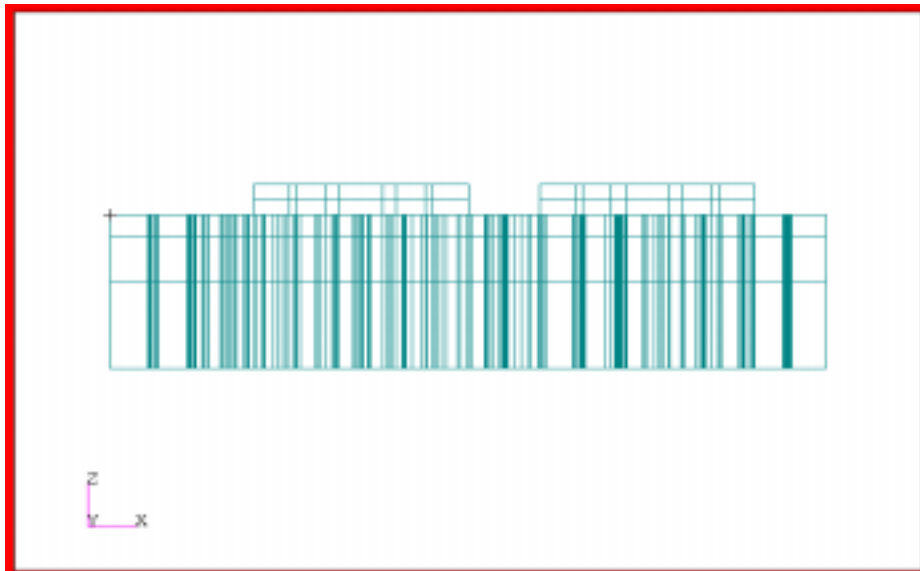
<select this icon once for a 90° -X rotation>



Reset Graphics using the *Reset Graphics* icon.



The model should now appear as shown below.



## Change display point of view

3. Change render style to hidden line and use Transformations... to adjust display to a better point of view for results.

Select **D**isplay/**E**ntity Color/**L**abel/**R**ender... to **H**idden Line to facilitate viewing.

**D**isplay/**E**ntity Color/**L**abel/**R**ender...

Render Style:

**H**idden Line

**A**pply

**C**ancel

Or, use the *Hidden Line* icon.



Again use the Transformations form to change the view point. (The Transformations form should have been left open on the screen and should still be available. If necessary, reopen it using Viewing/Transformations...).

**V**iewing

**T**ransformations...

**O**ptions...

Rotation increment (deg)

15 <use slider bar>

◆ Screen Relative

**O**K

<select this icon once for a 15° +Z rotation>

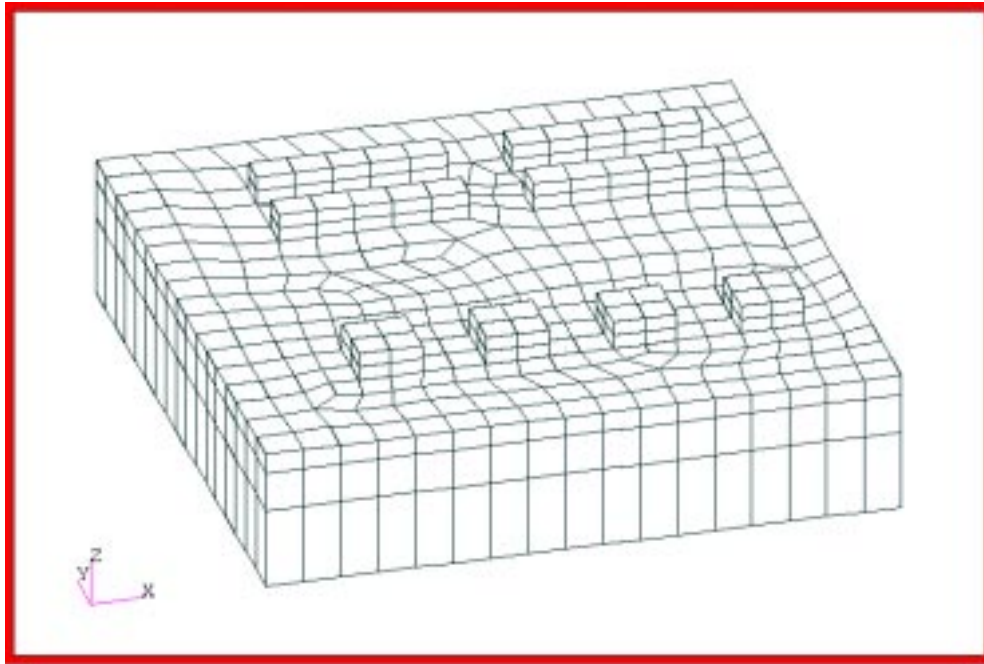


<select this icon twice for a 30° +X rotation>



**O**K

The display should now appear as shown below.



4. Create an **Isosurface Tool** with which to view isothermal surfaces contained within the model.

Select the **Insight Applications radio button**. There will be a short delay while insight is loaded and the *default\_viewport* is modified to show an *'Insight Graphics Window'*. Set *Action/Tool* to **Create/Isosurface**.

**Create an Isosurface tool**

◆ Insight
Create/Isosurface
Results Selection...

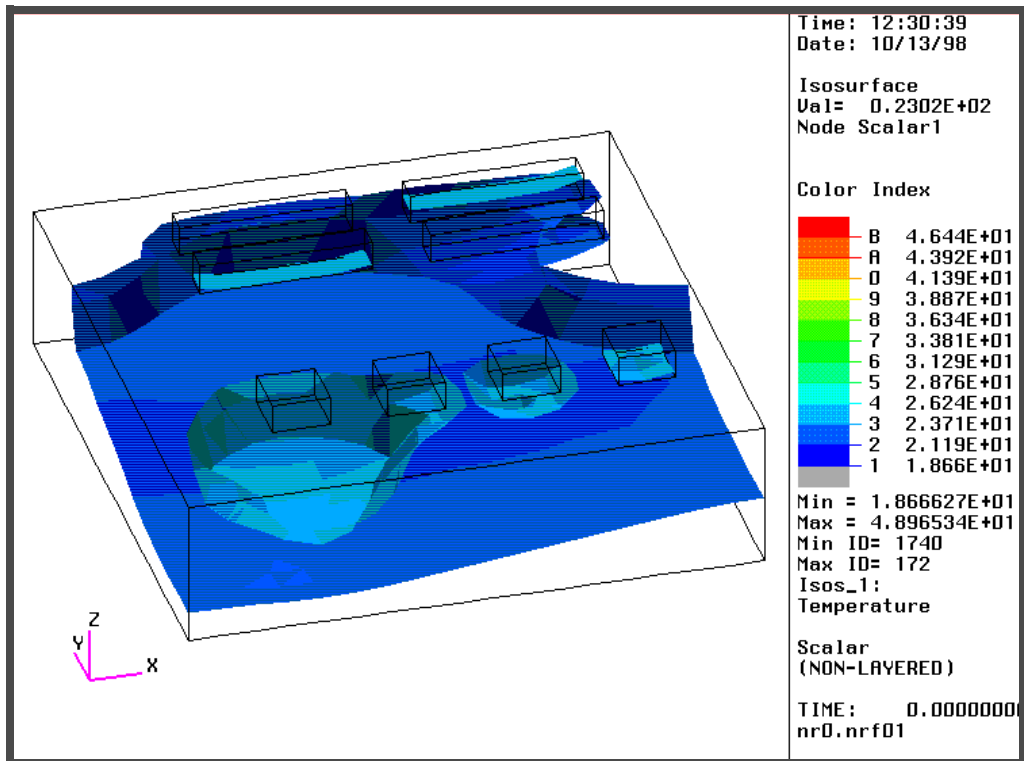
Select the results case and temperature data from the Results Selection form and select the **Isovalue Setup...** to define the number and value of the Isosurfaces.

Current Load Case(s)	2.1-Time: 0.0000000000D+00 S...
<b>Update Results</b>	
Isosurface Result	1.1-Temperature,
<b>Isovalue Setup...</b>	

Using either the slider bar or by editing the entry box and hitting a <CR> change the **Number of Isos** to **2**. Edit the **Isovalue** entry box and enter **23.0**. Edit the **Ending Value** box and enter **26.0**. Select **OK** twice to close the **Result Isovalue Setup** and **Result Selection** Form. Select **Apply** in the **Insight Imaging** form to create the **Isos\_1 Tool**

Number of Isos (Use Slider Bar)	<input type="text" value="2"/>
Isovalue	<input type="text" value="23.0"/>
Ending Value	<input type="text" value="26.0"/>
<input type="button" value="OK"/>	
<input type="button" value="OK"/>	
<input type="button" value="Apply"/>	

The Isos\_1 tool will appear in the *Existing Isosurfaces* list, the *Isosurface Name* box will increment the *Isosurface Tool Name*, and two isotherms will be displayed in the viewport. The display should appear as shown below.



5. Create a second **Isosurface Tool** which will define 5 display planes through the model on which fringe results will be displayed.

**Create another Isosurface tool and apply fringe data**

To prepare the display for the second isosurface tool select **Insight Control** from the *Menu Bar*. Choose **Post/Unpost Tools...** **Select None** and **Apply** to clear the display.

Insight Control

Post/Unpost Tools...

Select None

Apply

Cancel

In the Insight Imaging form set *Action/Tool* to **Create/Isosurface** change the *Isosurface Value* from **Result** to **Coord.** Select **Coordinate Selection** and in the Isosurface Coordinate Selection using the slider bar or by editing the entry box and hitting <CR> increase the *Number of Isos* to **5**. Set the *Starting Value* and *Ending Value* to **0.002** and **0.016**, respectively. Select **Isosurface Attributes** to change the isosurface *Color* to **white**, **Clip at Isosurface**, and set display extremes to **Free Edge**. Select **Apply** to create the tool.

◆ Insight

**Create/Isosurface**

Isosurface Value

**Coordinate Selection...**

Number of Isos (Use Slider Bar)

Starting value

Ending Value

**OK**

**Isosurface Attributes...**

Color:

■ **Clip at Isosurface**

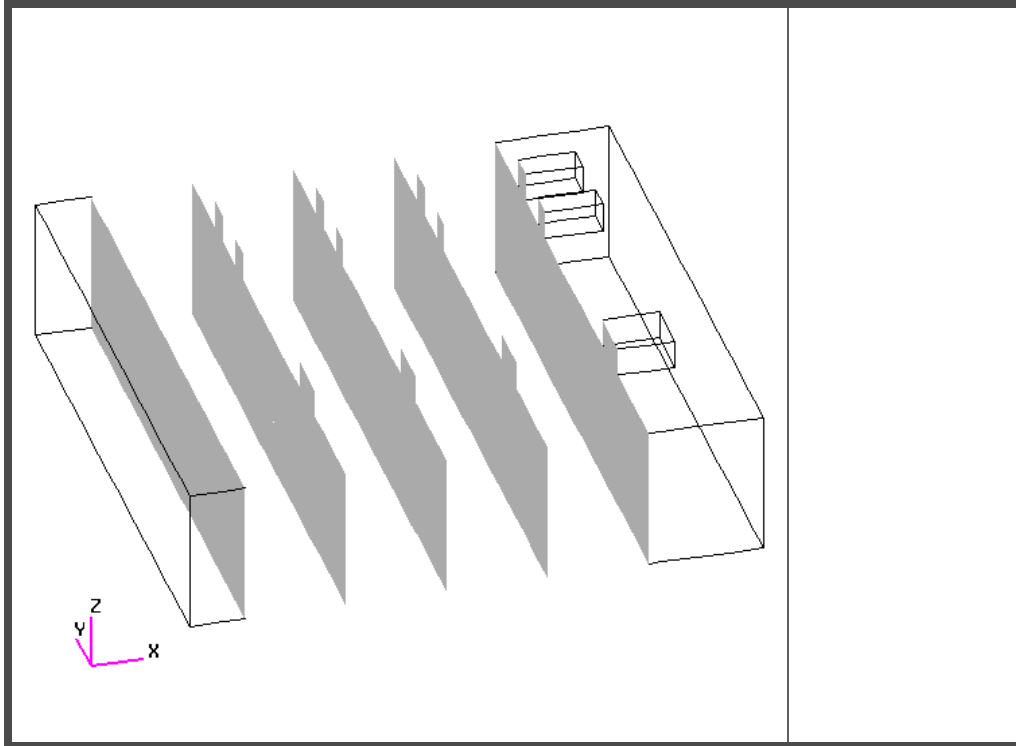
< Display

> Display

OK

Apply

The 5 isosurfaces should now be displayed as shown below.



This set of isosurface will be used to display results fringes. Use **Create/Fringe** from the Insight Imaging form to create the **Fringe Tool**. Select the temperature results and *Target* the **Isosurfaces** defined in **Isos\_2**.

◆ Insight

Create/Fringe

Results Selection...

Current Load Case(s)

2.1-Time: 0.000000000D+00 S...

Update Results

Fringe Result

1.1-Temperature,

OK

Target

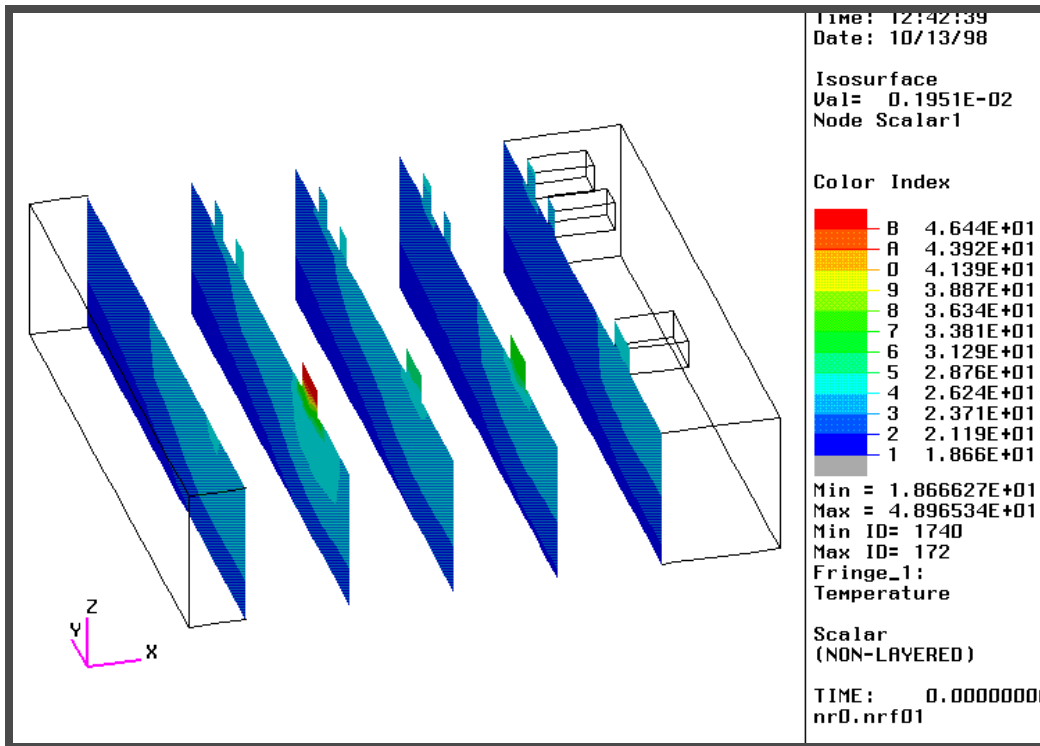
Isosurfaces

Target Isosurfaces

Isos\_2

**Apply**

The fringe results will be evaluated at the locations of the isosurface planes. The display should appear as shown below and on the front panel of this exercise.



6. Quit MSC.Patran

To leave **Insight** deselect the **Insight toggle**.

To stop MSC.Patran select **File** on the *Menu Bar* and select **Quit** from the drop-down menu.

**Quit  
MSC.Patran**

