



# GDS Import Wizard V5.3 Manual

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A smart tool to translate GDSII to 3DLayout EDB quickly:

- Extract nets from GDS and import to EDB
- Extract accurate material property from IRCX
- Extract accurate layer thickness and stackup from IRCX
- Automatic generate control xml for AEDT GDSII Importing
- Automatic create Via Group and SnapViaGroups
- Automatic generate components on top and bottom layer for easier port setup
- Automatic generate TSV Insulation coating
- Synchronous import to AEDT when EDB prepared
- Automatic detect and fix of small gaps between layers to avoid mesh Issue (New in V4.0)
- Support sheet layers to simplify thinner metal layer mesh e.g. 0.001um ( New in V4.0 )
- support to generate temperature dependent material ( New in V5.0)
- Add CSV input template to provide more flexible input for other Technology File ( New in V5.0)
- Support New TSV Layer feature in 3D Layout 2022R1 (New in V5.0)
- Support ConvertPolygonToCircle Feature to reduce mesh(New in V5.0)
- More flexible setting options and enhanced command line(No-GUI) support(windows and Linux)

# / ANSYS workflow for 2.5D/3D SI Interpower Simulation

Integrated with ANSYS AEDT



# Get the latest GDSImportWizard Tool

Return

<https://github.com/YongshengGuo/GDSImportWizard/releases/latest>

YongshengGuo / GDSImportWizard

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Releases Tags

Click Releases to download earlier version

Latest release

55fcee7 Verified Compare

GDSImportWizard Verxx

YongshengGuo released this 1 hour ago

Auto UnitScale

Assets 2

Source code (zip)

Source code (tar.gz)

Getting From here!

# Add GDS Import Wizard to AEDT

ANSYS Electronics Desktop 2020 R2 - Project40

File Edit View Project Tools Window Help

Tools menu options:

- Edit Libraries
- Library Tools
- Project Tools
- Run Script...
- Pause Script
- Record Script To File...
- Record Script to Project...
- Open Command Window
- Password Manager...
- Debug Logging...
- Stop Debug Logging
- Options
- Keyboard Shortcuts...
- External Tools... (1)
- Show Queued Simulations
- Edit Active Analysis Configuration...
- Import Array from Table...
- Job Management
- Calibration Wizard
- Chip Model Analyzer (CMA)
- Layout Links...
- Network Data Explorer
- PEmag...
- GDSImportWizard (5)

Properties

Variables

Message Manager

Ready

Project Manager

Project40

Definitions

HFSS Q3D Circuits & Systems Icepak Maxwell Simplorer Definitions Project

EDT Select Program

Release > GDS2XML\_V1.03

Organize New folder

TECH2XML\_test

This PC 3D Objects Desktop Documents Downloads Music Pictures Videos Windows (C:) New Volume (D:)

Name

GDSImportWizard.py (4)

File name: GDSImportWizard.py IronPython Script Files (\*.py)

Open Cancel

EDT Customize User Tools Menu

Menu Contents

GDSImportWizard

HBM Workflow

OK Cancel

Add (2)

Remove

Move Up

Move Down

Menu Text

GDSImportWizard

Command: ;2XML\_V 3\GDSImportWizard.py ... (3)

Arguments:

Initial Directory:

⑤ Open GDSImportWizard from here!

# GDS Import Wizard V5.0

GDSII Import Wizard V5.0 (build 20220217)

GDS Import Wizard V5.0

FastMode  
Import  
Wizard model  
1) Files input  
2) Stackup XML  
3) EDB Post  
About

**Function List**

**Work Area**

ControlXml

Tech File  Browse

GDSII  Browse

SimplifyDielectric  ☒ UseSheetLayer

MergeMethod  ☐ UseDefaultDF

ThinDielectricThreshold

DkDeviationThreshold

EDB Generation

AEDT Installed Dir  Browse

EBD File  Browse

☒ Auto Generate Component ☒ Add TSV Insulator Ring ☐ UseTemperatureDependMaterial

☒ ConvertPolygonToCircle

Import Close

# Running in Fast Mode



# Fast Mode

Fast mode provides a way of one click to Import all. Compared with Wizard mode, fast mode provides faster setting, but it cannot edit the intermediate files and fewer options.

GDSII Import Wizard V5.0 (build 20220217)

GDS Import Wizard V5.0

**FastMode**  
Import

Wizard model

1) Files input  
2) Stackup XML  
3) EDB Post  
About

Select FastMode

ControlXml

Tech File  Browse

GDSII  Browse

SimplifyDielectric  ☒ UseSheetLayer

MergeMethod  ☐ UseDefaultDF

ThinDielectricThreshold

DkDeviationThreshold

EDB Generation

AEDT Installed Dir  Browse

EBD File  Browse

☒ Auto Generate Component ☒ Add TSV Insulator Ring ☐ UseTemperatureDependMaterial

☒ ConvertPolygonToCircle

Import Close

# Fast Mode

GDSII Import Wizard V5.0 (build 20220217)

GDS Import Wizard V5.0

FastMode

Import

Wizard model

1) Files input

2) Stackup XML

3) EDB Post

About

ControlXml

Tech File: D:\Study\Script\repository\HFSS\GDSII\GDS2XML\TECH2XML\_test\TSMC\_INTERPOSER.ircx [Browse]

GDSII: D:\Study\Script\repository\HFSS\GDSII\GDS2XML\TECH2XML\_test\test.gds [Browse]

SimplifyDielectric: Weighted Average [v] [UseSheetLayer: ☒

MergeMethod: MergeThinLayer [v] [UseDefaultDF: ☐ 0.02]

ThinDielectricThreshold: 0.1

DkDeviationThreshold: 0.05

EDB Generation

AEDT Installed Dir: C:\Program Files\AnsysEM\v221\Win64\ [Browse]

EBD File: D:\Study\Script\repository\HFSS\GDSII\GDS2XML\TECH2XML\_test\test.aedb [Browse]

☒ Auto Generate Component ☒ Add TSV Insulator Ring ☐ UseTemperatureDependMaterial

☒ ConvertPolygonToCircle

Import Close

Set IRCX and GDS files

Control XML Option

AEDT Version and Project path

EDB post-processing

Click Import to import GDS to 3DL at once

# Running in Wizard Mode

# Fast Mode

GDSII Import Wizard V5.0 (build 20220217)

GDS Import Wizard V5.0

FastMode

Import

Wizard model

1) Files input

2) Stackup XML

3) EDB Post

About

Select WizardMode

Files Input

TechFile (ircx, csv) D:\Study\Script\repository\HFSS\GDSII\GDS2XML\TECH2XML\_test\TSMC\_ Browse

LayerMap Browse

GDSII D:\Study\Script\repository\HFSS\GDSII\GDS2XML\TECH2XML\_test\test.gc Browse

NetLayerMap metal3:133:0 metal4:126:0 ubmb:125:100 metal1:131:0 mb1:131:100 metal2: AutoSet

Test Extracta Nets

Next Close

Wizard Mode provides more detailed setting and control.  
Wizard Mode and Fast Mode share the same setting and options.

# Fast Mode – 1) Files input

GDSII Import Wizard V5.0 (build 20220217)

GDS Import Wizard V5.0

FastMode

Import

Wizard model

- 1) Files input
- 2) Stackup XML
- 3) EDB Post

About

Files Input

TechFile (ircx, csv) D:\Study\Script\repository\HFSS\GDSII\GDS2XML\TECH2XML\_test\TSMC\_ Browse

LayerMap Browse

GDSII D:\Study\Script\repository\HFSS\GDSII\GDS2XML\TECH2XML\_test\test.gc Browse

NetLayerMap metal3:133:0 metal4:126:0 ubmb:125:100 metal1:131:0 mb1:131:100 metal2: AutoSet

Test Extracta Nets

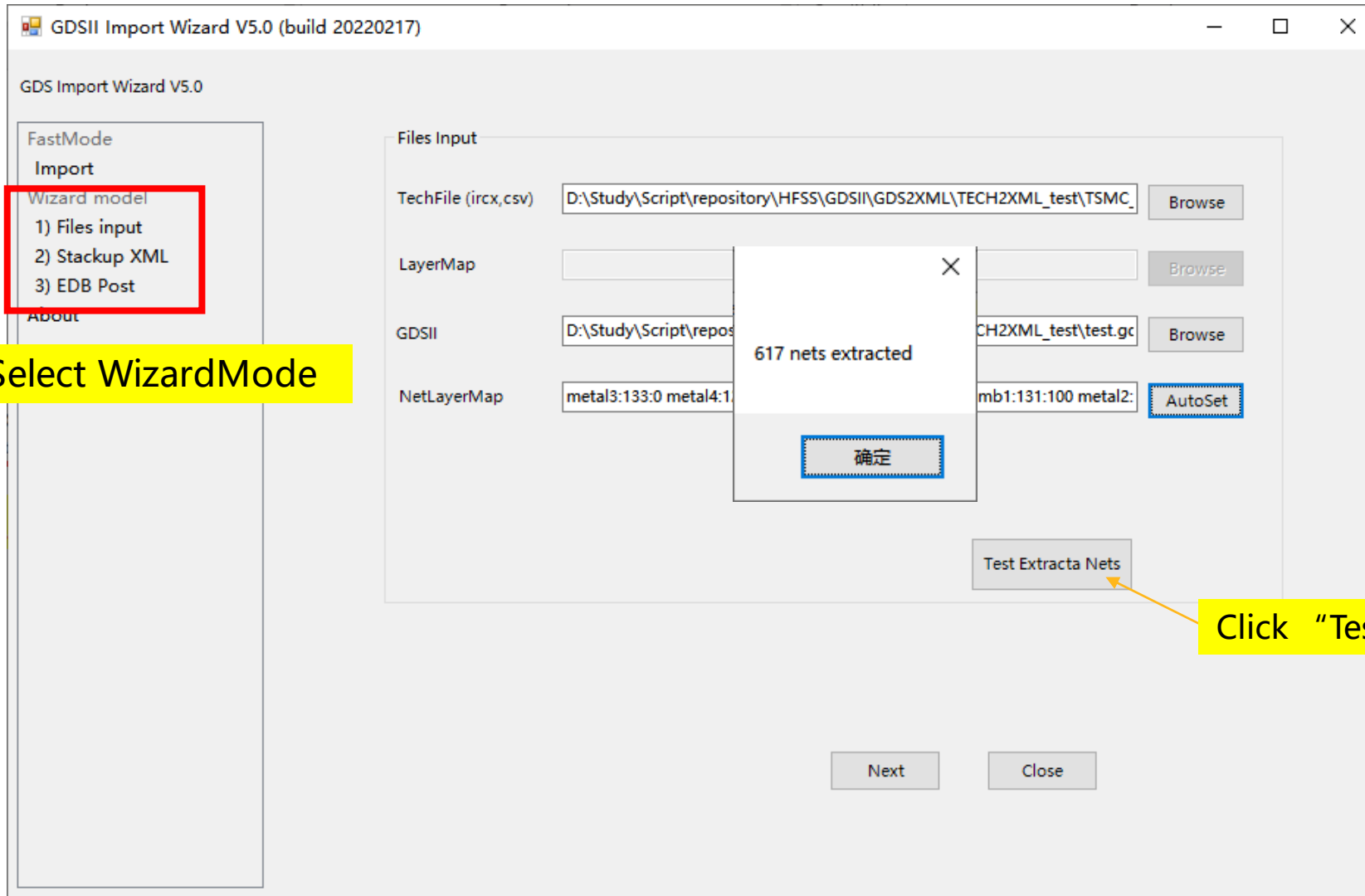
Next Close

Select WizardMode

Set IRCX and GDS files

NetLayerMap: Indicates which layers of GDS are used to extract Nets information. Click "AutoSet" to extract all net layer map in IRCX.

# Fast Mode – 1) Files input



## Fast Mode – 2) Stackup XML

GDSII Import Wizard V5.0 (build 20220217)

GDS Import Wizard V5.0

FastMode

Import

Wizard model

1) Files input

2) Stackup XML

3) EDB Post

About

Control XML

Stackup XML D:\Study\Script\repository\HFSS\GDSII\GDS2XML\TECH2XML\_test\test.xml Browse

SimplifyDielectric MergeThinLayer

MergeMethod Weighted Average

ThinDielectricThreshold 0.1

DkDeviationThreshold 0.05

☐ UseDefaultDF 0.02

☒ CreateViaGroups

☒ UseSheetLayer

☒ Add TSV Insulator Ring

☒ ConvertPolygonToCircle

Edit Control XML

Generate Control Xml

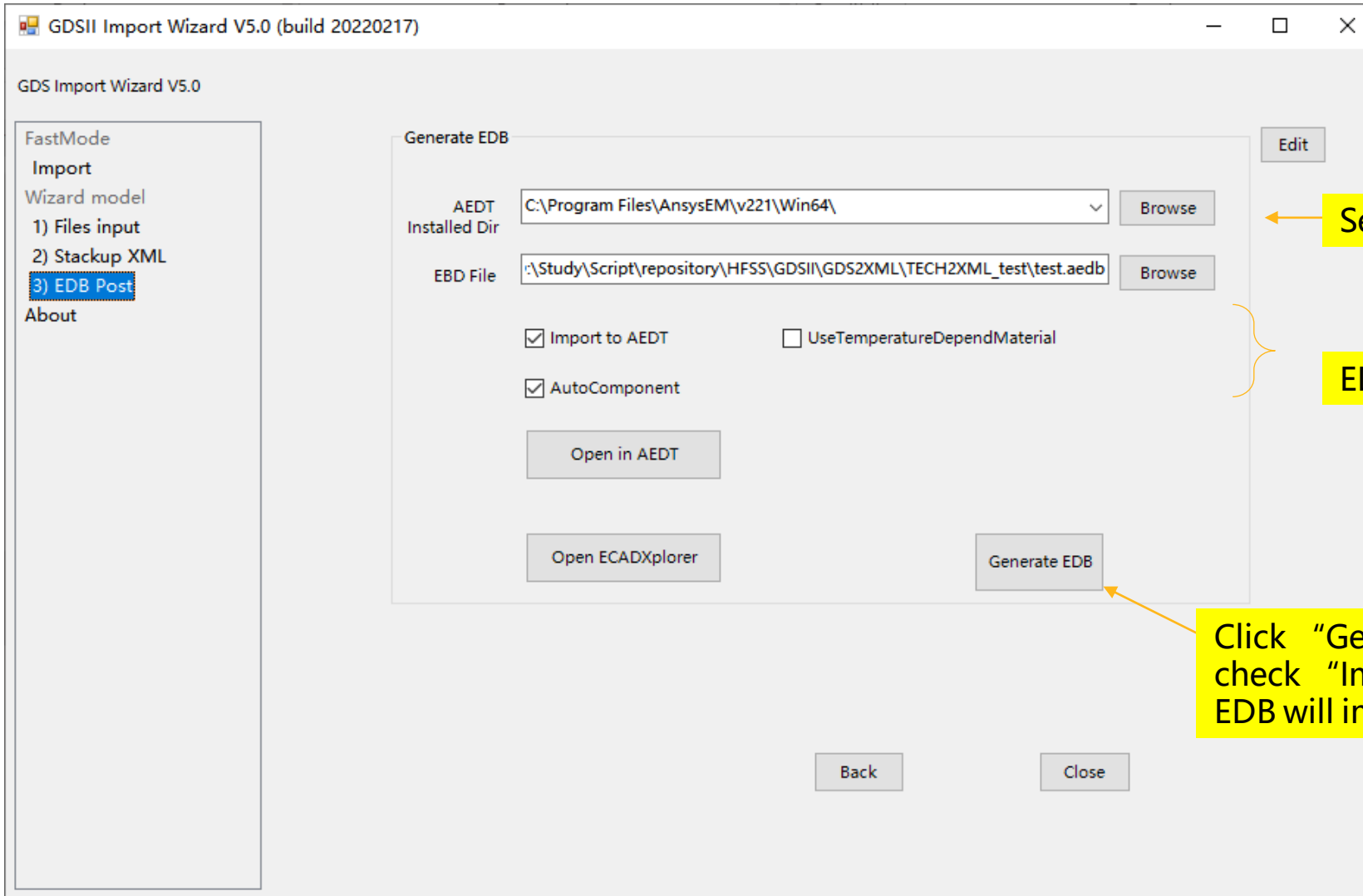
Back Next Close

Set Stackup XML Save path

Control XML Option

Click "Generate Control XML" to generate Control XML

## Fast Mode – 3) EDB Post



Set AEDT Path (Version)

EDB post Option

Click "Generate EDB" to generate EDB, if check "Import to AEDT", the generated EDB will import to 3DL.



# Running in windows command line

# Running in batch mode - Windows

## Eg1. Configure from system environment:

- set AedtInstallDir=C:\Program Files\AnsysEM\AnsysEM21.1\Win64
- set GdsFile=D:\HFSS\GDSII\GDS2XML\TECH2XML\_test\test.gds
- set TechFile=D:\HFSS\GDSII\GDS2XML\TECH2XML\_test\TSMC\_INTERPOSER.ircx
- set path=% AedtInstallDir %\common\IronPython;%path%
- ipy64 GDSImportWizard.py -batch

## Eg2. Configure from command arguments:

- set AedtInstallDir=C:\Program Files\AnsysEM\AnsysEM21.1\Win64
- set path=% AedtInstallDir %\common\IronPython;%path%
- ipy64 GDSImportWizard.py -GdsFile "D:\HFSS\GDSII\GDS2XML\TECH2XML\_test\test.gds" -TechFile "D:\HFSS\GDSII\GDS2XML\TECH2XML\_test\TSMC\_INTERPOSER.ircx"

Note: system environment and command arguments could be mixed.

# Running in batch mode - Windows

- A short command is supported:
  - ipy64 GDSImportWizard.py gdspath
  - ipy64 GDSImportWizard.py gdspath edbpath
- Eg3. short command
  - ipy64 GDSImportWizard.py "D:\HFSS\GDSII\GDS2XML\TECH2XML\_test\test.gds" -TechFile "D:\HFSS\GDSII\GDS2XML\TECH2XML\_test\TSMC\_INTERPOSER.ircx"

# Running in Linux terminal command

# Running in batch mode - Linux

Eg1. Configure from system environment:

- export AedtInstallDir='/home/ansys/app/AnsysEM20.1/Linux64'
- export GdsFile=/home/ansys/yguo/test/test.gds
- export TechFile=/home/ansys/yguo/test/TSMC\_INTERPOSER.ircx
- export ipy64="\$AedtInstallDir /common/mono/Linux64/bin/mono \$AedtInstallDir /common/IronPython/ipy64.exe"
- \$ipy64 GDSImportWizard.py

Eg2. Configure from command arguments:

- export AedtInstallDir='/home/ansys/app/AnsysEM20.1/Linux64'
- export ipy64="\$AedtInstallDir /common/mono/Linux64/bin/mono \$AedtInstallDir /common/IronPython/ipy64.exe"
- \$ipy64 GDSImportWizard.py -GdsFile "D:\HFSS\GDSII\GDS2XML\TECH2XML\_test\test.gds" - TechFile "D:\HFSS\GDSII\GDS2XML\TECH2XML\_test\TSMC\_INTERPOSER.ircx"

Note: system environment and command arguments could be mixed.

# Running in batch mode - Linux

- A short command is supported:
  - `ipy64 GDSImportWizard.py gdspath`
  - `ipy64 GDSImportWizard.py gdspath edbpath`
- Eg3. short command
  - `export AedtInstallDir='/home/ansys/app/AnsysEM20.1/Linux64'`
  - `export ipy64="$aedtInstallPath/common/mono/Linux64/bin/mono $aedtInstallPath/common/IronPython/ipy64.exe"`
  - `$ipy64 GDSImportWizard.py "D:\HFSS\GDSII\GDS2XML\TECH2XML_test\test.gds" – TechFile "D:\HFSS\GDSII\GDS2XML\TECH2XML_test\TSMC_INTERPOSER.ircx"`

# Options Setting

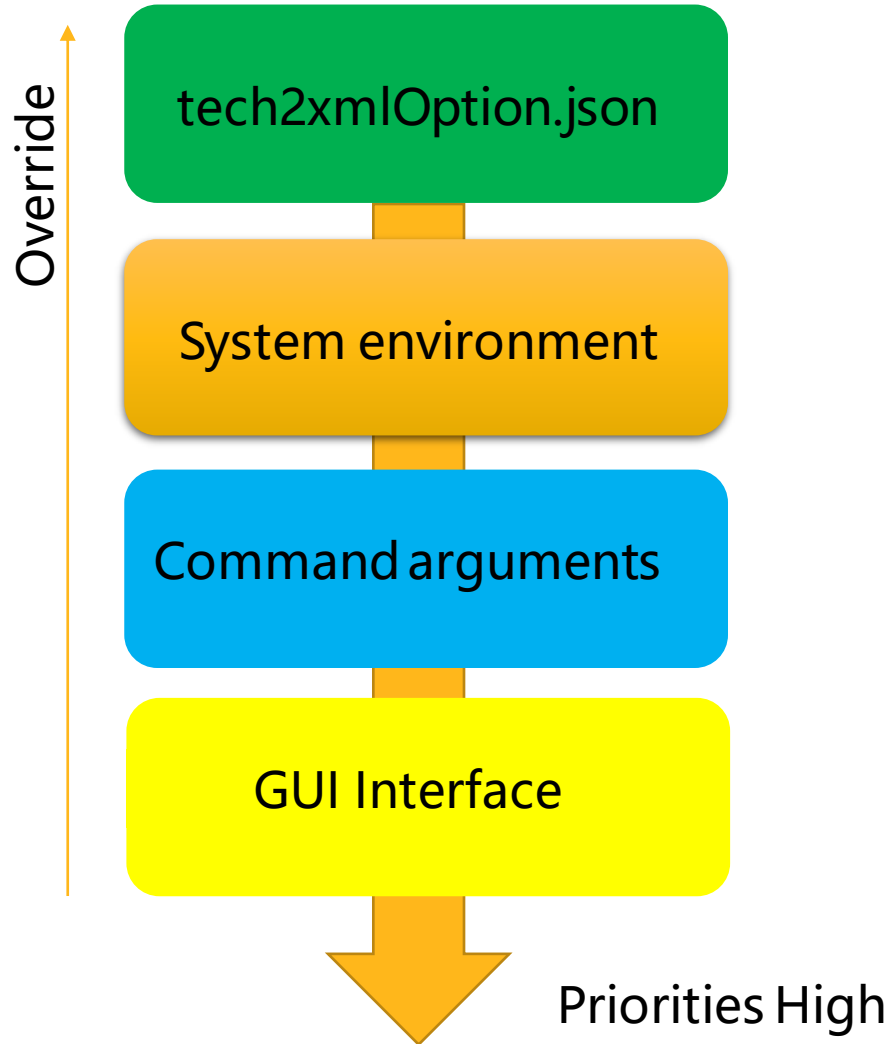
# Options Parameters in GDS Import Wizard

- There are Four ways to set the options for GDS Import Wizard
  - 1) By configure file: tech2xmlOption.json (in same directory with toolkit)
  - 2) By system environment variables
  - 3) Set the parameters in command arguments.
  - 4) Set in GUI.

These three methods will achieve the same effect, but with different priorities.



# / Options Priorities



If the same parameter given in multiple places, the higher priority parameter will take precedence.

As one example, if one parameter is given in System environment and tech2xmlOption.json at the same time, System environment value will have high priorities and take precedence.

GUI Interface have the highest priority, Command arguments System environment and tech2xmlOption.json setting will be used as initial values of GUI input elements.

# Options

Options		Defalut Value	Description
Stackup XML Parameters			
InputType	0	0: Ircx, others: not define	
UseShortMergeLayerName	True	changing is not recommended	
SimplifyDielectricMethod	1,	0: NoSimplify, No Merge on Dielectric, exact layers in IRCX 1 : MergeThinLayer, Merge layer thinner than a specific value 2:BlockMerge, use average DK on all layers except substrate	
MergeDielectricMethod	0	0: Weighted Average 1: Weighted Average 2: Kraszewski equation 3: Landau equation 4: Lichtenecker equation	
ThinDielectricThreshold	0.1	0.1: Merge layer when layer thickness<0.1um, default unit um	
DkDeviationThreshold	0.05 or 5%	0.05: Merge layers when dk difference less then 10%	
FixedSmallLayerGap	0.005	0.005: Fix small air gap between layers less then 0.005um, default unit um	
UseDefaultDF	True	True: If not hav df value in technology, a default df value will be used false: If not hav df value in technology, will set df =0	
DefaultDF	0.02	set for default df value	
NotUseDfonSubstrate	True	True: default df value will never used on Substrate layer(Silicon material), it is recommended to set as True.	
UseSheetLayer	True	True: set the layers as 0um when it small then "SheetLayerThreshold", which will avoid to generatelarge number of tiny meshes	
SheetLayerThreshold	0.0015	0.0015: if "UseSheetLayer" is True, layers which < 0.0015um will set to zero thickness(treat as 2D sheet object)	
CreatViaGroups	True	True: ViaGroups will be implemented on via layers	
IgnoreLayersReg	"air,ctm.*,cbm.*"dtce.*"	layers will not import into 3D Layout. Regular expressions are used, and ignoreLayerNames are seprate with comma or space	
TextLayermap	None	Text layers indicate for net extraction, None will use all text layer in technolo yg files. User could set it accrond the rule: "ubmb:125:100, "ubump:125:0"	
ConvertPolygonToCircle	True	True: will convert all polygons on a layer to circles, only support from AEDT 2022R1	
ConvertPolygonToCircleRatio	0.9	polygons with Circle Ratio0.9 will convert to circles, valid when ConvertPolygonToCircle as True	

# / Options

Path Parameters		
TechFile	None	input: techFile path (Absolute), must set
LayerMapFile	None	input: layerMapFile path (Absolute), not used
GdsFile	None	input: gdsFile path (Absolute), must set
AedtInstallDir	None	input: AEDT installation path (Absolute), must set to do edb post
ControlXmlPath	None	output: controlXmlPath (Absolute), optional
edbPath	None	output: edbPath (Absolute), optional
Gds post Parameters		
OpenInAedt	True	true: will open EDB when the conversion is completed
AutoComps	True	true: will automatic generation device, easy port creation
CompLayerList	1,-1	index for which layers will generate components, 1 indicate top layer, -1 indicate bottom layer, and so on.
ComponentPinsTolerance	10	Pins spacing less than 10 times pad diameter with each other will be considered as a component
AutoTSVCoat	True	true: will automatic generation tsv insulator
DissolveViaGroup	True	true: dissolve all groups or component before doing edb post processing
UseTemperatureDependMaterial	True	true: will generate temperature dependence material if TC1/TC2 given in material definition

# Customized Technology File- CSVTech\_overlapping\_template

# CSV Tech overlapping template

- The CSV format template provide an easy way to define Customized Technology File.
- You could find a demo file in the folder of the toolkit as CSVTech\_overlapping\_template.csv
- overlapping template is suited for any stackup, the dielectrics and metals are defined separately.
- The follow pages will give the details the overlapping template.

# / CSVTech\_overlapping\_template.csv

NO	LayerName	Type	LayerMap	TextLayerMap	Thickness	Height	LowerLayer	UpperLayer	DK	DF	Cond	TC1	TC2	Tref	
1	UF1	D			35	107.64			3.7						
19	IMD1a	D			0.05	100.75			8.1						
20	ILD	D			0.75	100			4						
21	substrate	D			100	0			11.9		10				
22	PASSB1	D			0.8	-0.8			6.7						
23	PASSB2b	D			2	-2.8			6.7						
24	PASSB2a	D			0.4	-3.2			6.7						
25	underFill_C	D			0.001	-3.201			6.7						
26	ubump	C	170;0 74;0	125;0	0.001	142.639					5.80E+07	0.00E+00	0.00E+00	25.00	
27	metal4	C	74;0		1.45	105.19					5.80E+07	3.89E-03	-1.50E-07	25.00	
28	metal3	C	33;40		0.85	103.565					5.80E+07	3.63E-03	-1.39E-06	25.00	
29	metal2	C	32;40		0.85	102.12					5.80E+07	3.63E-03	-1.39E-06	25.00	
30	ctm	C			0.08	101.793					5.80E+07	0.00E+00	0.00E+00	25.00	
31	cbm	C			0.2	101.575					5.80E+07	0.00E+00	0.00E+00	25.00	
32	metal1	C	31;40		0.85	100.675					5.80E+07	3.63E-03	-1.39E-06	25.00	
33	mb1	C	31;100		0.001	-0.801					5.80E+07	0.00E+00	0.00E+00	25.00	
34	ubmb	C	170;100	125;100	0.001	-3.201					5.80E+07	0.00E+00	0.00E+00	25.00	
36	via4	V	86;0				metal4	ubump			5.80E+07				
37	via3	V	85;0				metal3	metal4			5.80E+07				
38	via2	V	52;40				metal2	metal3			5.80E+07	3.63E-03	-1.39E-06		
39	ctm via	V					ctm	metal2			5.80E+07	0.00E+00	0.00E+00		
40	cbm via	V					cbm	metal2			5.80E+07	0.00E+00	0.00E+00		
41	via1	V	51;40				metal1	metal2			5.80E+07				
42	tsv	V	251;0 86;0				mb1	metal1			5.80E+07				
43	pmb	V	5;100				ubmb	mb1			5.80E+07				
44	tsv	I			0.15				4						

CSVTech\_overlapping\_template.csv is in the folder of the toolkit.

# / Column Definition - CSV Tech overlapping template

1. **LayerName** is the names will be used in 3D Layout stackup, should be present.
2. **Type**, C : Conductor/Metal layer, V : Via layer, D : Dielectric layer, I : Insulating layer
  - Via Group and SnapViaGroups will be implemented on all Via layers.
  - Insulating layer is designed to define TSV insulation thickness, it must have a LayerName that have defined in Via Layers, or will be ignore
3. **LayerMap** indicates the layer mapping in GDS file.
  - Conductor/Metal and Via layer must have LayerMap value or will be ignore.
  - Multiple layermap Mapping could set to one layer separated with space, e.g. 86;0 85;0
4. **TextLayerMap** indicates which layer used to extract net list in GDS,
  - the layermap in GDS should have net information.
5. **Thickness** is set for Dielectrics/ Metals/Vias layer thickness, the default unit is um.
6. **Height** indicates position of the layer in stackup
  - All Height define in the lower of the layer, dielectrics Layers or Metal/Vias layers will be reordered by Height value, respectively.
  - If dielectrics Height not give, the height will be obtained by accumulating the thickness of dielectrics layer (invert order)
  - If Metal and Vias Height not give, the height will be obtained by accumulating the thickness of Metal and Vias layer (invert order)
  - The last dielectric layer is the origin, all height (D/C/V) value refer to this value, negative value is accepted.

# / Column Definition - CSV Tech overlapping template

## 7. **LowerLayer, UpperLayer** defined the start and end layer of via layer

- If LowerLayer, UpperLayer not give, the adjacent layers will set to LowerLayer, UpperLayer
- LowerLayer, UpperLayer determines the thickness of the via layer, which have higher priority the via Thickness property

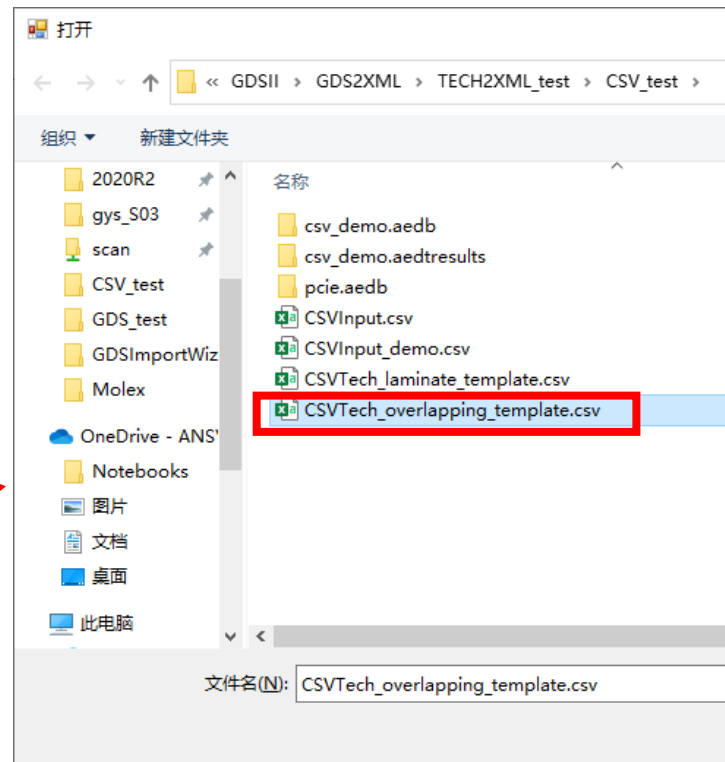
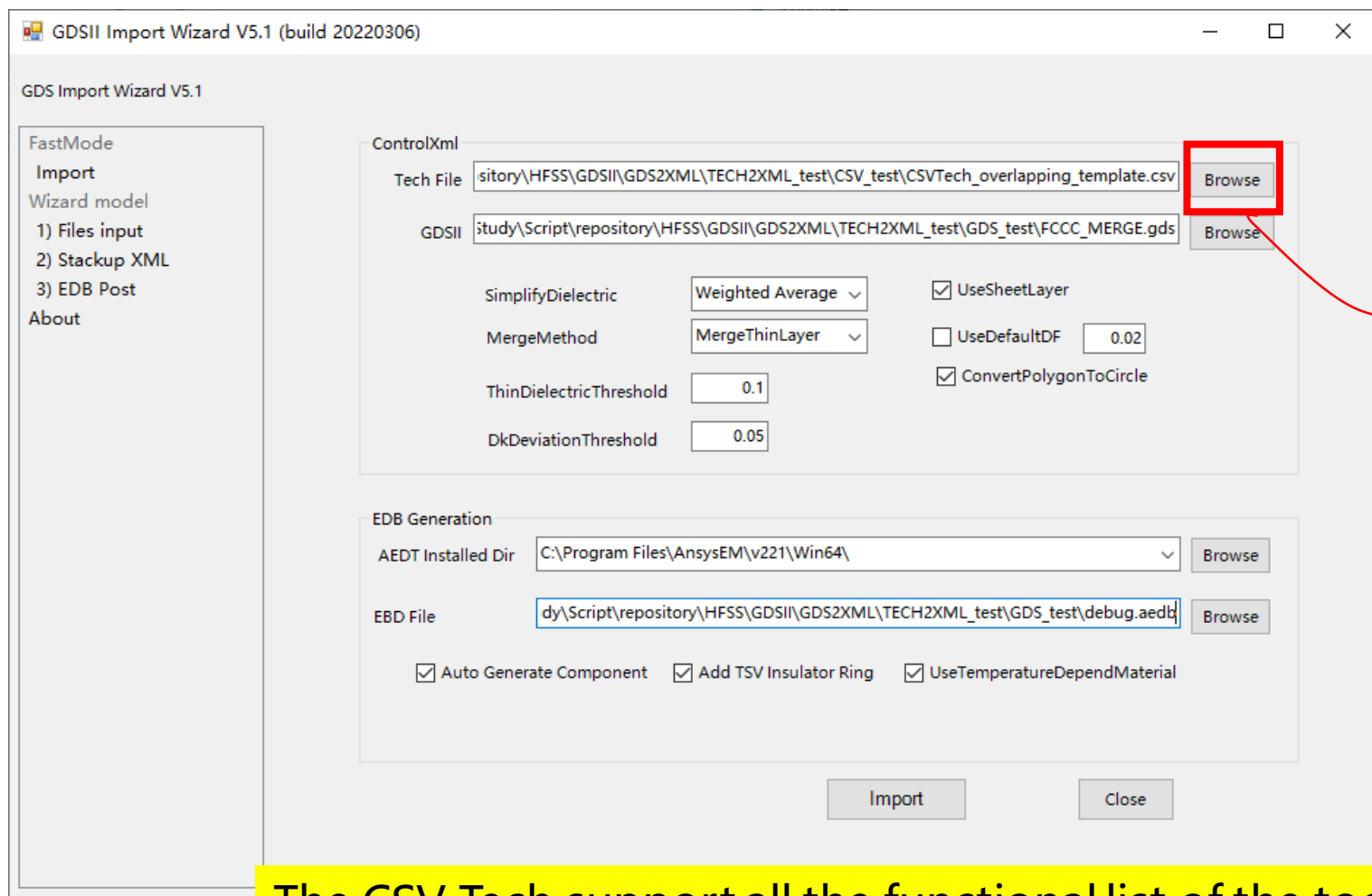
## 8. **DK, DF, Cond** is used to set Material properties of the layers

## 9. **TC1, TC2, Tref** is the temperature coefficient of conductivity, use for corner analysis

- temperature-dependent material (conductivity) will be used if check UseTemperatureDependMaterial option in GUI
- The formular is  $\text{Cond} / (1 + (\text{TC1} * (\$Temp - \text{Tref})) + (\text{TC2} * (\$Temp - \text{Tref}) ** 2))$
- Tref is the base temperature, which defines the current conductivity



# Use CSV Tech as input



The CSV Tech support all the functional list of the toolkit.

# Customized Technology File- CSVTech\_laminate\_template

# / CSV Tech laminate template

- The CSV format template provide an easy way to define Customized Technology File.
- You could find a demo file in the folder of the toolkit as CSVTech\_laminate\_template.csv
- **Laminate template** provides a simplified then input the overlapping template, the dielectrics and metals are defined in laminate mode, more like PCB/Package application.
- Laminated CSV assume all the dielectrics is filled in Metal/Via layers and align with these layers.
- The follow pages will give the details the overlapping template.

# / CSVTech\_laminate\_template.csv

NO	LayerName	Type	LayerMap	TextLayerMap	Thickness	Height	DK	DF	Cond	TC1	TC2	Tref	
1	TOP_UBM	C	214;0	214;0	44.5		4	0.02	5.80E+07				
2	PI1	V	11;0		3		4	0.02	5.80E+07				
3	RDL1	C	1;0		4		4	0.02	5.80E+07				
4	PI2	V	12;0		3		4	0.02	5.80E+07				
5	RDL2	C	2;0		4		4	0.02	5.80E+07				
6	PI3	V	13;0		3		4	0.02	5.80E+07				
7	RDL3	C	3;0		4		4	0.02	5.80E+07				
8	tsv	V	14;0		3		4	0.02	5.80E+07				
9	RDL4	C	4;0		4		4	0.02	5.80E+07				
10	PI5	V	15;0		3		4	0.02	5.80E+07				
11	BOT_UBM	C	215;0		58		4	0.02	5.80E+07				
12	tsv	I			0.15		4						

Laminated CSV assume all the dielectrics is filled in Metal/Via layers and align with these layers.  
CSVTech\_laminate\_template.csv is in the folder of the toolkit.

# / Column Definition - CSV Tech laminate template

1. **LayerName** is the names will be used in 3D Layout stackup, should be present.
2. **Type**, C : Conductor/Metal layer, V : Via layer, ~~D : Dielectric layer~~, I : Insulating layer
  - **Dielectric layer (type D) should be never present in this laminate template.**
  - The start and end layer is considered as the adjacent layers
  - Via Group and SnapViaGroups will be implemented on all Via layers.
  - Insulating layer is designed to define TSV insulation thickness, it must have a LayerName that have defined in Via Layers, or will be ignore
3. **LayerMap** indicates the layer mapping in GDS file.
  - Conductor/Metal and Via layer must have LayerMap value or will be ignore.
  - Multiple layermap Mapping could set to one layer separated with space, e.g. 86;0 85;0
4. **TextLayerMap** indicates which layer used to extract net list in GDS,
  - the layermap in GDS should have net information.
5. **Thickness** must set for Metals/Vias layer thickness, the default unit is um.
6. **Height** indicates position of the layer in stackup
  - All the height will be obtained by accumulating the thickness of Metal and Vias layer (invert order)
  - Manually set the height value is not suggested.

# / Column Definition - CSV Tech laminate template

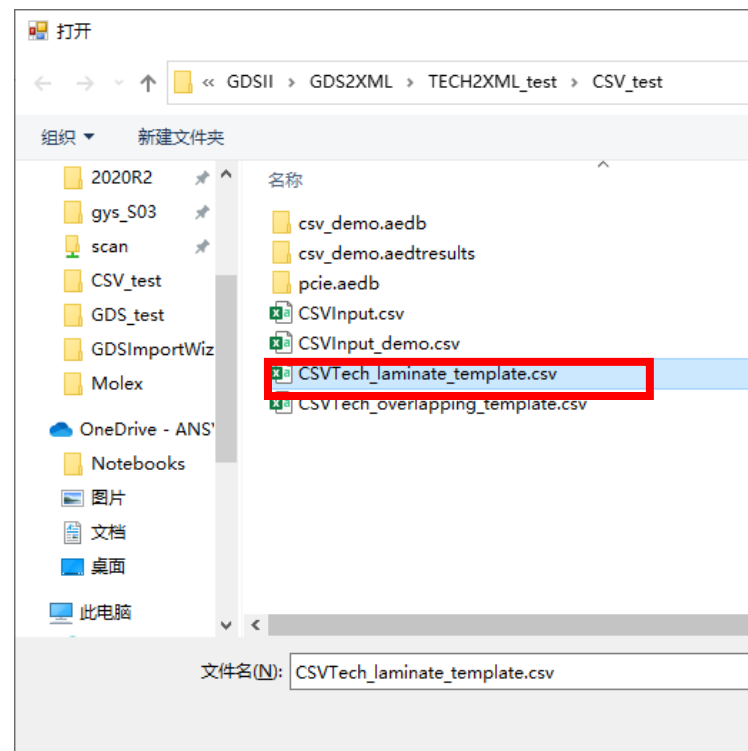
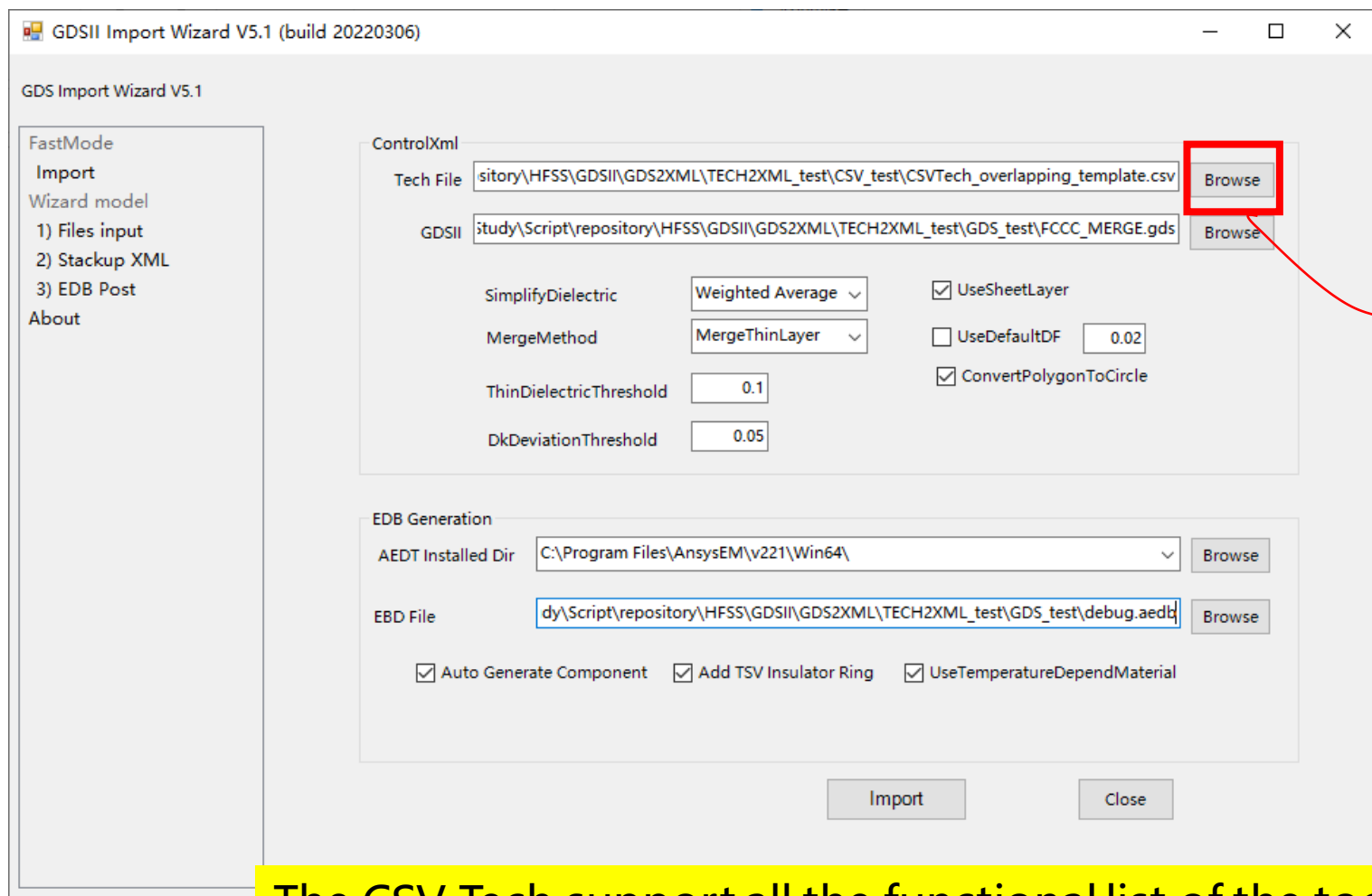
**7. DK, DF, Cond** is used to set Material properties of the layers

- DK, DF is used for the filled material
- Cond is used for the metal/via material

**8. TC1, TC2, Tref** is the temperature coefficient of conductivity, use for corner analysis

- temperature-dependent material (conductivity) will be used if check UseTemperatureDependMaterial option in GUI
- The formular is  $\text{Cond} / (1 + (\text{TC1} * (\$Temp - \text{Tref})) + (\text{TC2} * (\$Temp - \text{Tref}) ** 2))$
- Tref is the base temperature, which defines the current conductivity

# Use CSV Tech as input







The CSV Tech support all the functional list of the toolkit.

# Additional remarks



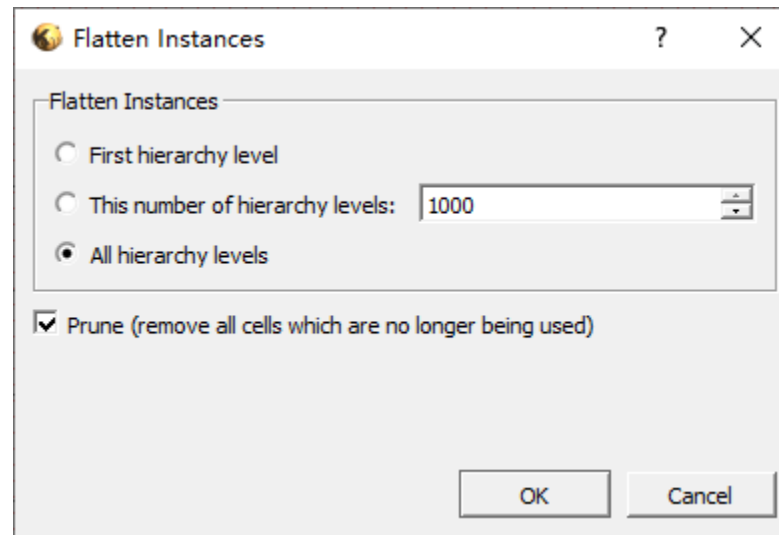
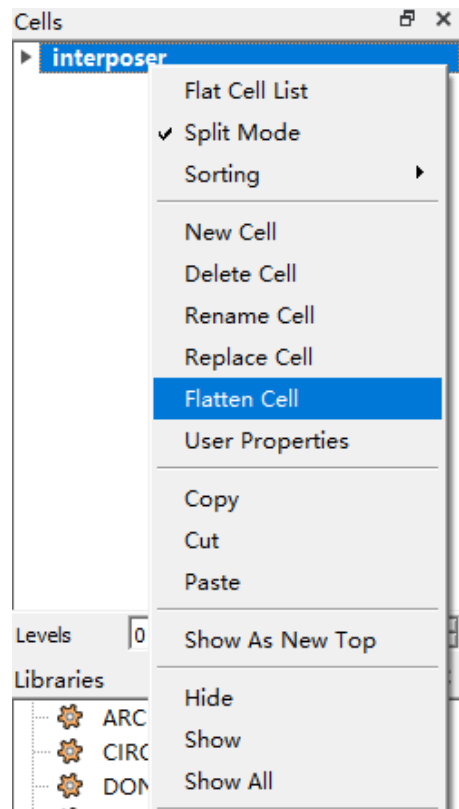
# / Restore default settings

- If you have modified the configuration in tech2xmlOption.json and then want to restore to the default options. Just delete the file and run the toolkit again, tech2xmlOption.json will be made with default options.
- Don't forget that environment variables have higher priority. You need to check the settings in environment variables to make sure it is in purposeful.

名称	修改日期	类型	大小
 GDS Import Wizard V5.0 Manual-202...	2/21/2022 12:19 PM	Foxit Reader PD...	848 KB
 GDSImportWizard.py	2/18/2022 9:14 AM	Python File	2 KB
 gdslib.dll	3/6/2022 4:20 PM	应用程序扩展	1,334 KB
 <u>tech2xmlOption.json</u>	3/6/2022 4:24 PM	JSON File	2 KB

# / About nets loss or error

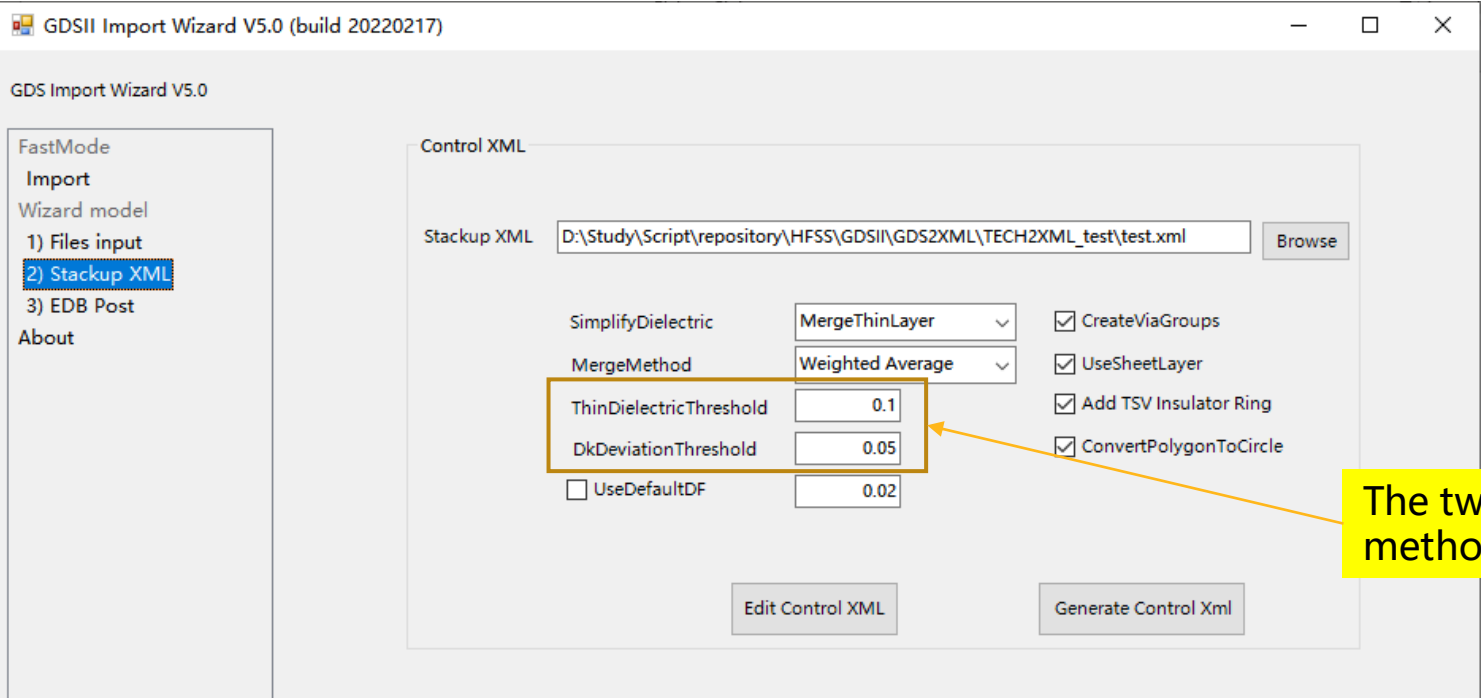
- A known issue, hierarchy cells may bring wrong net coordinates and cause net lost or wrong (short or not right). Flatten Cells and then import will solve this issue.
- Below is a demo, how to use KLayout to flatten the cells.



# About Stackup simplification

[Return](#)

Stack simplification can effectively reduce the complexity of the model and improve efficiency

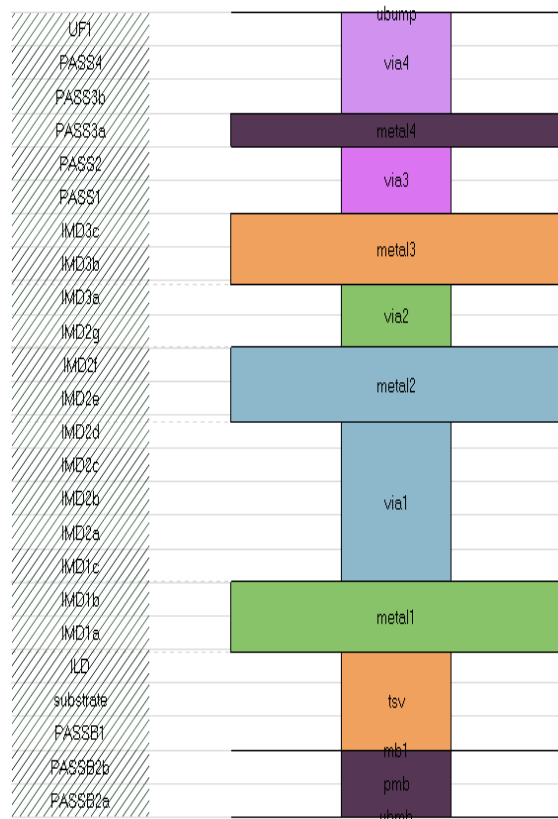


The two options only available on MergeThinLayer method, they control how the thin layers be merged.

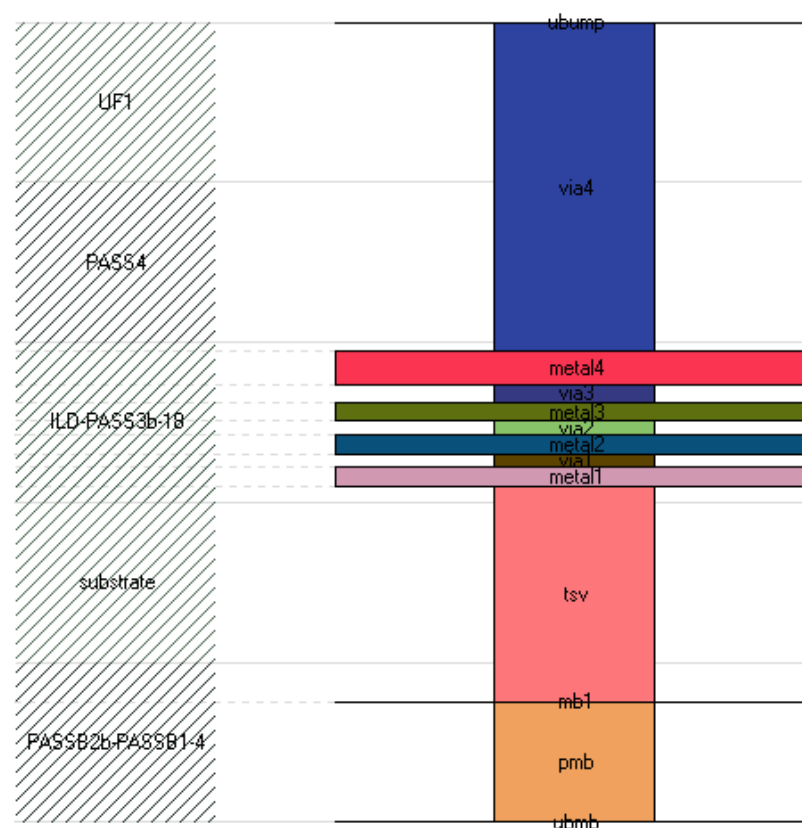
e.g.	ThinDielectricThreshold	DkDeviationThreshold	Note
1	0.1	0.1	Merge when layer thickness<0.1um, or 2 layers dk difference less than 10%
2	0.05	-1	Only merge when layer thickness<0.05um
3	-1	0.05	Only merge when 2 layers dk difference less than 5%

# About Stack simplification

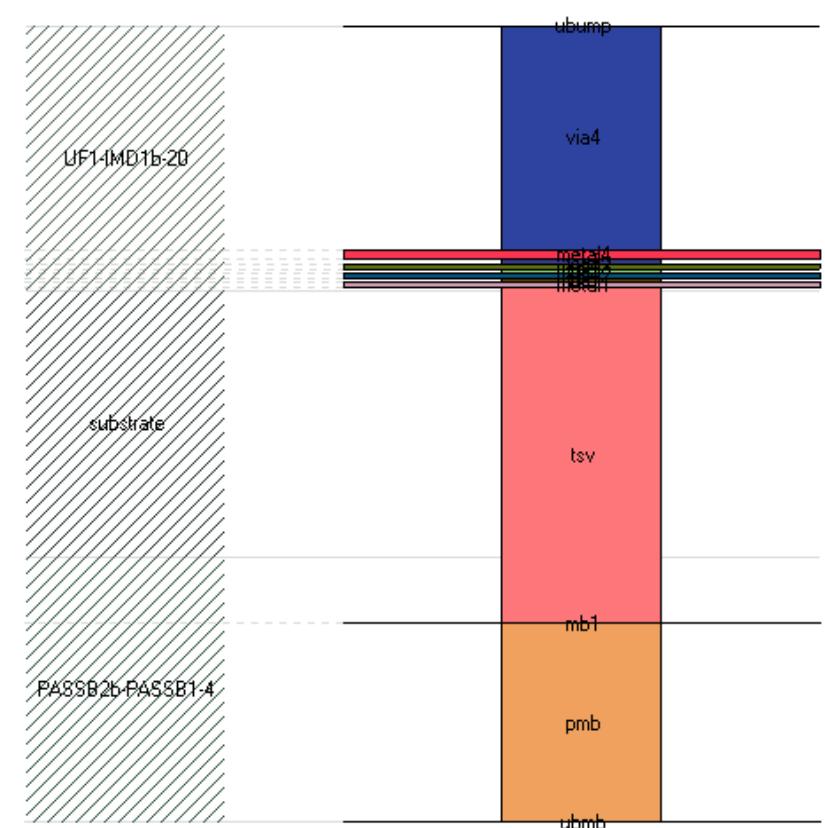
- Merge Method Compare



NoSimplify



MergeThinLayer



BlockMerge

# Use Sheet Layer

Return

Sheet layer will reduce the number of meshes

GDSII Import Wizard V5.0 (build 20220217)

GDS Import Wizard V5.0

FastMode  
Import  
Wizard model  
1) Files input  
2) Stackup XML  
3) EDB Post  
About

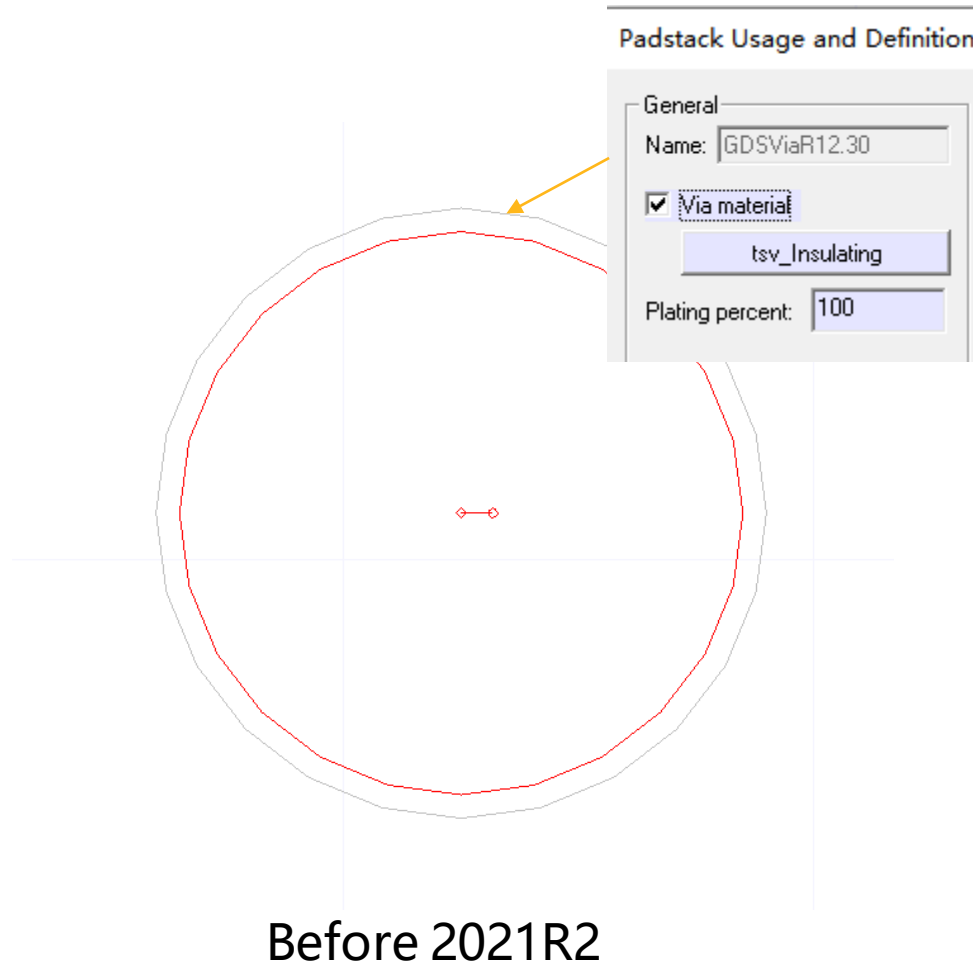
Control XML

Stackup XML

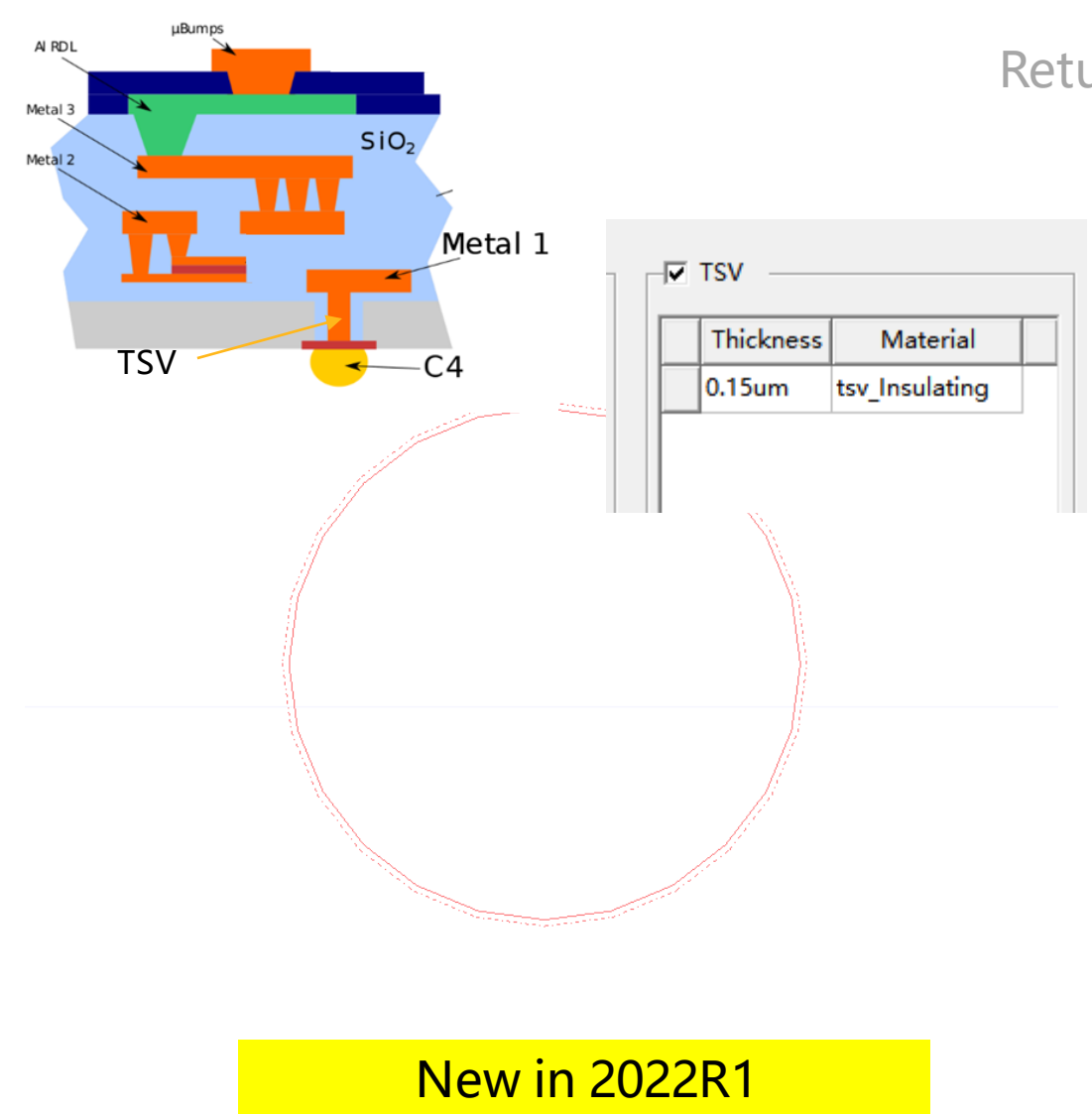
SimplifyDielectric  ☒ CreateViaGroups  
MergeMethod  ☒ UseSheetLayer  
☒ Add TSV Insulator Ring  
☒ ConvertPolygonToCircle  
ThinDielectricThreshold   
DkDeviationThreshold   
☐ UseDefaultDF

Material	Signal	Material Cond	Thickness
ILD_PASS3b_18	dielectric	ILD_PASS3b_18	7.04um
substrate	dielectric	substrate	100um
tsv	via	tsv_cond	101.476um
mb1	signal	mb1_cond	0um
PASSB2b_PASSB1_4	dielectric	PASSB2b_PASSB1_4	3.201um
pmb	via	pmb_cond	2.4um
ubmb	signal	ubmb_cond	0um

Layer with thin thickness tool will convert to sheet (0um).  
thin thickness is controlled by option SheetLayerThreshold



TSV insulation is realized using 2 overlapping vias



TSV insulation is realized using layer TSV new property

GDS Import Wizard V5.0 will automatically choose the best way according to which AEDT version you run it.



# Temperature dependent material

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\* CONDUCTOR 10 15 (NAME:V, TYPE:V, HEIGHT:V, THICKNESS:V, WIDTH:V, SPACE:V, B\_BIAS:V, T\_BIAS:V, BIAS:V, RESIST:V, ABOVE\_IMD:V, ABOVE\_IMD\_DIFF:V, TC1:V, TC2:V, INDIE\_TABLE:P)

FIELD TYPE HEIGHT THICKNESS WIDTH SPACE B\_BIAS T\_BIAS BIAS RESIST ABOVE\_IMD ABOVE\_IMD\_DIFF TC1 TC2 INDIE\_TABLE

NAME

ubump C 142.639000 0.001000 22.00000 18.00000 0.0000 0.0000 0.0000 0.00010 UF1 -0.0010 0.00000e+00 0.00000e+00 N/A

metal4 C 105.190000 1.450000 3.00000 2.00000 0.3890 -0.0340 0.1775 0.02100 PASS2 0.0000 3.89000e-03 -1.50000e-07 INDIE\_TABLE[metal4]

metal3 C 103.565000 0.850000 0.40000 0.40000 0.0000 0.1000 0.0500 0.02200 IMD3a -0.0750 3.63100e-03 -1.39200e-06 INDIE\_TABLE[metal3]

metal2 C 103.565000 0.850000 0.40000 0.40000 0.0000 0.1000 0.0500 0.02200 IMD2d -0.0750 3.63100e-03 -1.39200e-06 INDIE\_TABLE[metal2]

ctm 0.0000 0.00000e+00 0.00000e+00 INDIE\_TABLE[ctm]

cbm 0.0000 0.00000e+00 0.00000e+00 INDIE\_TABLE[cbm]

metal1 0.0000 0.00000e+00 0.00000e+00 INDIE\_TABLE[metal1]

ILD -0.0750 3.63100e-03 -1.39200e-06

PASSB2b -0.0010 0.00000e+00 0.00000e+00 N/A

N/A 0.0000 0.00000e+00 0.00000e+00 N/A

PASSB1 N/A N/A N/A N/A

GDSII Import Wizard V5.0 (build 20220217)

FastMode

Import

Wizard model

1) Files input

2) Stackup XML

3) EDB Post

About

ControlXml

Tech File

Browse

GDSII

Browse

SimplifyDielectric

Weighted Average

UseSheetLayer

MergeMethod

MergeThinLayer

UseDefaultDF

0.02

ThinDielectricThreshold

0.1

DkDeviationThreshold

0.05

EDB Generation

AEDT Installed Dir

C:\Program Files\AnsysEM\v221\Win64\

EBD File

Browse

Auto Generate Component

Add TSV Insulator Ring

UseTemperatureDependMaterial

ConvertPolygonToCircle

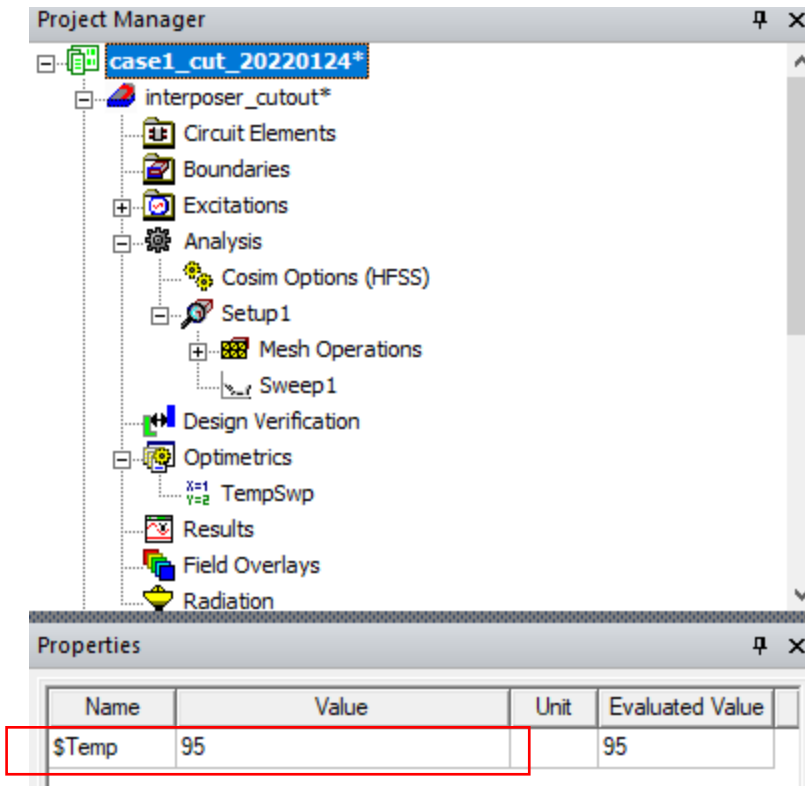
Import

Close

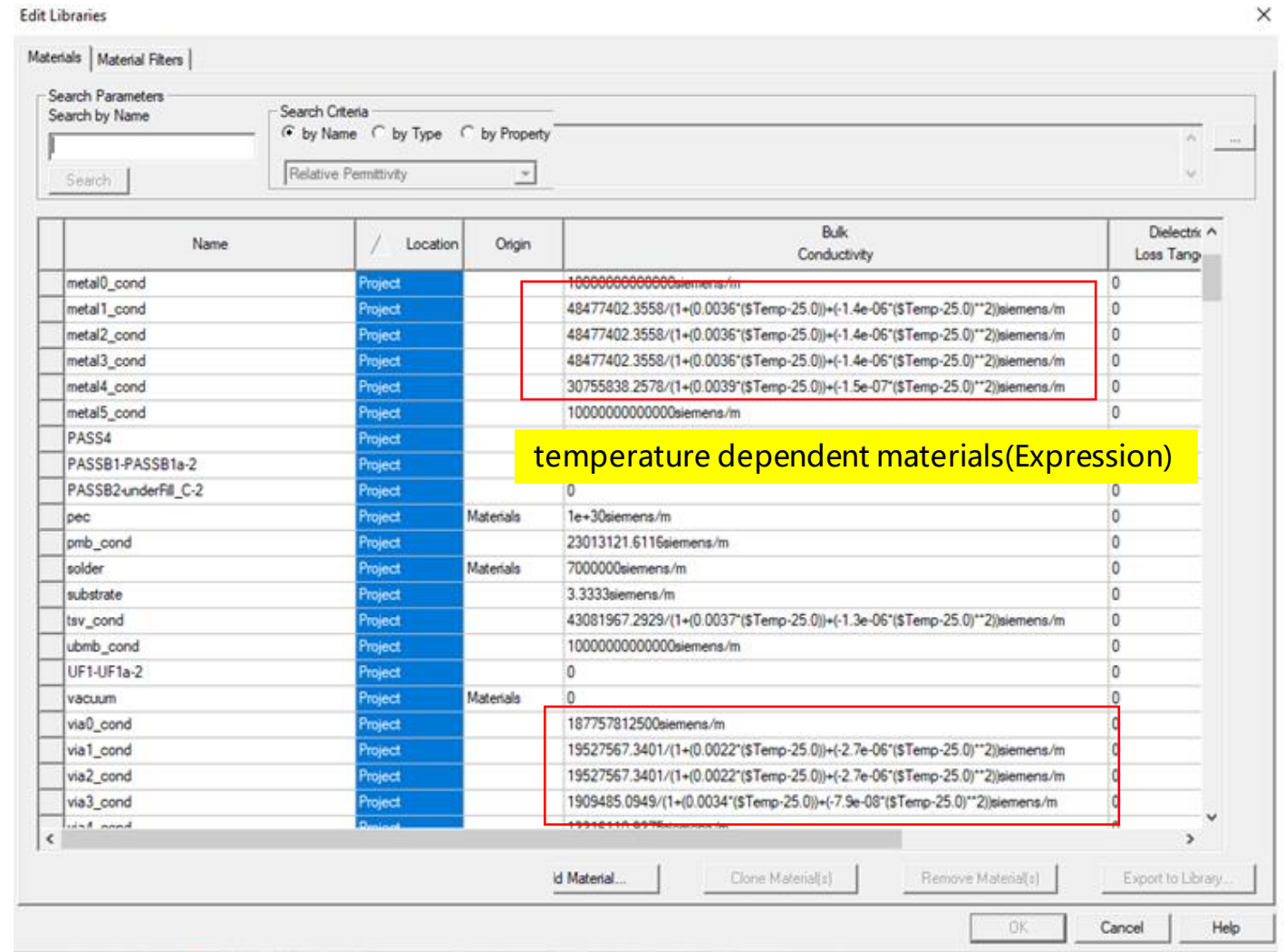
Temperature will affect the conductivity of metal and increase the resistance. If Tc1 and TC2 are given and **UseTemperatureDependMaterial** is checked, temperature dependent materials will be generated



# Temperature dependent material



Sweep the \$Temp variable will get the corner results at different temperatures



 **Ansys**

