



# GDS Import Wizard V3.4 Manual

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# Content

- ANSYS workflow for 2.5D/3D SI Interpower Simulation
- Running in Proficiency Mode
- Running in Wizard Mode
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- Running in batch mode - Linux

# About GDS Import Wizard

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 stack up from IRCX
- Generate control xml for AEDT Import Module
- Support dielectric merge when importing
- Support overlapping and laminated stack up
- Automatic create Via Group and SnapViaGroups
- Generate components on top and bottom layer
- Generate TSV coating and Insulating layer
- Synchronous import to AEDT when EDB prepared

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

Return

## ANSYS AEDT

Option1:

- ✓ TSMC IRCX
- ✓ GDS File

Option2:

- ✓ Tech File
- ✓ Layer Map
- ✓ GDS File

GDSImportWizard

- ✓ Net name extract
- ✓ Stackup
- ✓ Layer thickness
- ✓ Material properties
- ✓ Via Groups
- ✓ Snap Primitives
- ✓ More...

HFSS 3D Layout

- ✓ S-parameter Extraction
- ✓ Crosstalk
- ✓ SSN
- ✓ Eye opening
- ✓ PDN
- ✓ Thermal-EM Co-simulation

Step 1

Step 2

Step 3

# Getting the latest GDSImportWizard Tool

Return

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

The screenshot shows the GitHub repository page for **YongshengGuo / GDSImportWizard**. The navigation bar includes links for Code, Issues, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. The **Releases** tab is selected, and a yellow arrow points to it with the text "Click Releases to download earlier version".

On the left sidebar, there is a "Latest release" badge, a commit hash "55fcee7", a "Verified" badge, and a "Compare" dropdown.

The main content area displays the release title **GDSImportWizard Verxx** and a message from YongshengGuo stating "released this 1 hour ago". Below this, the text "Auto UnitScale" is visible.

The "Assets" section shows two items: "Source code (zip)" and "Source code (tar.gz)". The "Source code (zip)" item is highlighted with a red rectangle, and a yellow arrow points to it from a yellow box containing the text "Getting From here!".

# Add GDS Import Wizard to AEDT

The screenshot illustrates the process of adding the GDS Import Wizard to the AEDT menu. The main application window shows the 'Tools' menu with 'External Tools...' highlighted (1). The 'Select Program' dialog box is open, showing the file 'GDSImportWizard.py' selected (4). The 'Customize User Tools Menu' dialog box is also open, showing the 'Menu Contents' list with 'GDSImportWizard' and 'HBM Workflow' (2). The 'Menu Text' is 'GDSImportWizard' (3). The 'Command' field is set to ';&2XML\_V 3\GDSImportWizard.py ...' (3). The 'Initial Directory' field is empty (4). The 'Add' button is highlighted (2). The 'GDSImportWizard' option is highlighted in the 'Tools' menu (5).

① External Tools...

② Add

③ Command: ;&2XML\_V 3\GDSImportWizard.py ...

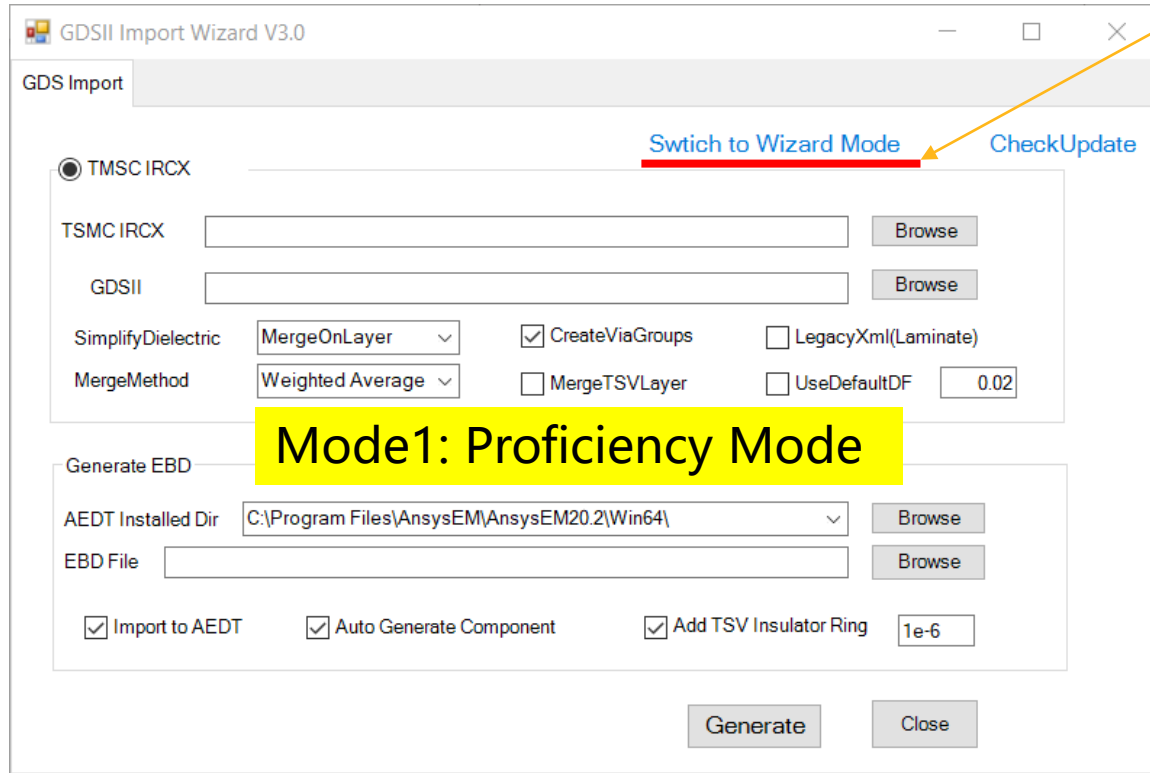
④ GDSImportWizard.py

⑤ GDSImportWizard

⑤ Open GDSImportWizard from here!

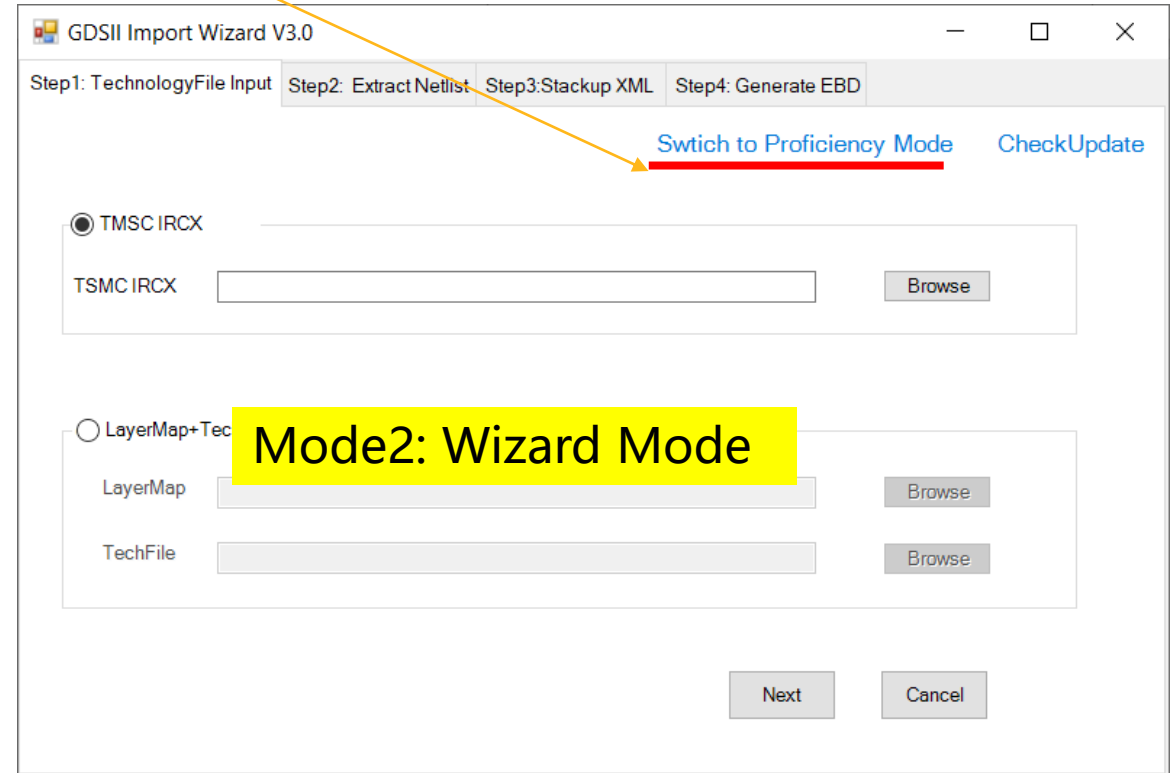
# New Proficiency Mode modes in V3.0

Switching two modes by click here



The screenshot shows the 'GDSII Import Wizard V3.0' window in Proficiency Mode. The 'GDS Import' tab is active. Under the 'TSMC IRCX' section, there are input fields for 'TSMC IRCX' and 'GDSII', each with a 'Browse' button. Below these are settings for 'SimplifyDielectric' (set to 'MergeOnLayer'), 'MergeMethod' (set to 'Weighted Average'), and checkboxes for 'CreateViaGroups' (checked), 'LegacyXml(Laminate)' (unchecked), 'MergeTSVLayer' (unchecked), and 'UseDefaultDF' (set to '0.02'). The 'Generate EBD' section includes a dropdown for 'AEDT Installed Dir' (set to 'C:\Program Files\AnsysEM\AnsysEM20.2\Win64\'), an 'EBD File' input field with a 'Browse' button, and checkboxes for 'Import to AEDT' (checked), 'Auto Generate Component' (checked), and 'Add TSV Insulator Ring' (checked) with a value of '1e-6'. At the bottom are 'Generate' and 'Close' buttons. A yellow box with the text 'Mode1: Proficiency Mode' is overlaid on the 'Generate EBD' section. A red underline and an arrow point to the 'Switch to Wizard Mode' link in the top right corner.

Mode1: Proficiency Mode



The screenshot shows the 'GDSII Import Wizard V3.0' window in Wizard Mode. The 'Step1: TechnologyFile Input' tab is active. Under the 'TSMC IRCX' section, there is an input field for 'TSMC IRCX' with a 'Browse' button. Below this is the 'LayerMap+Tech' section, which includes input fields for 'LayerMap' and 'TechFile', each with a 'Browse' button. At the bottom are 'Next' and 'Cancel' buttons. A yellow box with the text 'Mode2: Wizard Mode' is overlaid on the 'LayerMap+Tech' section. A red underline and an arrow point to the 'Switch to Proficiency Mode' link in the top right corner.

Mode2: Wizard Mode

# Running in Proficiency Mode



# Proficiency Mode

Switch to wizard mode from here

GDSII Import Wizard V3.1

GDS Import

Switch to Wizard Mode    CheckUpdate

☒ TSMC IRCX

TSMC IRCX  Browse

GDSII  Browse

SimplifyDielectric MergeOnLayer ☐ CreateViaGroups ☐ LegacyXml(Laminate)

MergeMethod Weighted Average ☒ NoMergeTSVLayer ☐ UseDefaultDF 0.02

Generate EBD

AEDT Installed Dir C:\Program Files\AnsysEM\AnsysEM20.2\Win64\ Browse

EBD File  Browse

☒ Import to AEDT ☒ Auto Generate Component ☒ Add TSV Insulator Ring 1e-6

Generate Close

Refer to "Wizard Mode" section for the detail comments for Options.

Finished whole import flow once

Note: Proficiency mode has the same options as Wizard mode. Proficiency mode provides quick import way for users who are familiar with the workflow. Please refer to "Wizard Mode "document for the detail comments for all Options input.

# Running in Wizard Mode

# Step1: Define Technology File

GDSII Import Wizard 2.0

Step1: TechnologyFile Input Step2: Extract Netlist Step3: Stackup XML Step4: Generate EBD

☒ TSMC IRCX

TSMC IRCX

☐ LayerMap+TechFile

LayerMap

TechFile

Next Cancel

Option 1: Using TSMC IRCX File

GDSII Import Wizard 2.0

Step1: TechnologyFile Input Step2: Extract Netlist Step3: Stackup XML Step4: Generate EBD

☐ TSMC IRCX

TSMC IRCX

☒ LayerMap+TechFile

LayerMap

TechFile

Next Cancel

Option 2: Use Apache layermap and Techfile

Option 1: Using TSMC IRCX File is suggested workflow.

# What about IRCX

IRCX is an EDA data format for interconnect modeling with TSMC's 65- and 40-nm process technologies.

Include:

- ✓ Layer Mapping
- ✓ Layer Thickness
- ✓ Layer Material property

Application:

- ✓ RC parasitic extraction,
- ✓ electromigration analysis,
- ✓ power integrity analysis, and
- ✓ electromagnetic simulation

```
96 [RC SPICE INFORMATION]
97 LAYER {
98 * STACK 34 4 (NAME:V, MEASURED_FROM:V, HEIGHT:V, THICKNESS:V)
99 FIELD      MEASURED_FROM  HEIGHT  THICKNESS
100 NAME
101 ubump      UF1           142.639000  0.001000
102 UF1        PASS4        107.640000  35.000000
103 PASS4      PASS3b       107.040000  0.600000
104 PASS3b     PASS3a       106.640000  0.400000
105 PASS3a     PASS2        105.190000  1.450000
106 metal4     PASS2        105.190000  1.450000
107 PASS2      PASS1        104.490000  0.700000
108 PASS1      IMD3c        104.415000  0.075000
109 IMD3c      IMD3b        103.690000  0.725000
110 IMD3b      IMD3a        103.640000  0.050000
111 metal3     IMD3a        103.565000  0.850000
112 IMD3a      IMD2g        103.020000  0.620000
113 IMD2g      IMD2f        102.970000  0.050000
114 IMD2f      IMD2e        102.245000  0.725000
115 IMD2e      IMD2d        102.195000  0.050000
116 metal2     IMD2d        102.120000  0.850000
117 IMD2d      IMD2c        101.873000  0.322000
118 IMD2c      IMD2b        101.793000  0.080000
119 ctm         IMD2b        101.793000  0.080000
120 IMD2b      IMD2a        101.775000  0.018000
121 IMD2a      IMD1c        101.575000  0.200000
122 cbm         IMD1c        101.575000  0.200000
123 IMD1c      IMD1b        101.525000  0.050000
124 IMD1b      IMD1a        100.800000  0.725000
125 IMD1a      ILD          100.750000  0.050000
126 metal1     ILD          100.675000  0.850000
127 ILD        substrate    100.000000  0.750000
128 substrate  PASSB1       0.000000  100.000000
129 PASSB1     PASSB2b      -0.800000  0.800000
130 mb1        PASSB2b      -0.801000  0.001000
131 PASSB2b    PASSB2a      -2.800000  2.000000
132 PASSB2a    underFill_C  -3.200000  0.400000
133 underFill_C N/A         -3.201000  0.001000
134 ubmb       N/A         -3.201000  0.001000
135
```

```
[LAYER_MAPPING]
#substate is reversed-tone NWELL
#via4 is (ubump AND metal4)
#ubump_top_pin is ubump_pin
#ubmb_top_pin is ubmb_pin
#RC      GDS  LVS      DFII
ubump    170;0  ubump    UBM;drawing
metal4   74;0  metal4    AP;drawing
DUM4     74;1  DUM4      AP;dummy
metal3   33;40 metal3    M3;drawing
DUM3     33;41 DUM3      M3;dummy
metal2   32;40 metal2    M2;drawing
DUM2     32;41 DUM2      M2;dummy
metal1   31;40 metal1    M1;drawing
DUM1     31;41 DUM1      M1;dummy
mb1      31;100 MB1      M1;BSL
ubmb     170;100 UBMB     UBM;BSL
via4     86;0  via4      CB2;drawing
via3     85;0  via3      RV;drawing
via2     52;40 via2      VIA2;drawing
vial     51;40 vial      VIA1;drawing
tsv      251;0 tsv      TSV;drawing
tsv_3t   251;3 tsv_3t   TSV;dummy1
pmb      5;100 PMB       PM;dummy
ubump_pin 125;0 ubm_top_pin UBM;pin
metal4_pin 126;0 metal4_pin AP;pin
metal3_pin 133;0 metal3_pin M3;pin
metal2_pin 132;0 metal2_pin M2;pin
metal1_pin 131;0 metal1_pin M1;pin
mb1_pin   131;100 MB1_pin  M1;BSP
ubmb_pin  125;100 UBMB_pin UBM;test0
ctm       77;0  ctm      CTM;drawing
cbm       88;0  cbm      CBM;drawing
ctm_via   51;40 ctm_via   VIA1;drawing
cbm_via   51;40 cbm_via   VIA1;drawing
```

## Step2: Extract Nets information from GDSII

GDSII Import Wizard

Step1: TechnologyFile Input Step2: Extract Netlist Step3: Stackup XML Step4: Generate EBD Help

Extract Nets From GDS

GDSII  Browse

NetLayerMap  Update

NetRegular

Extract Net

Extract Edit

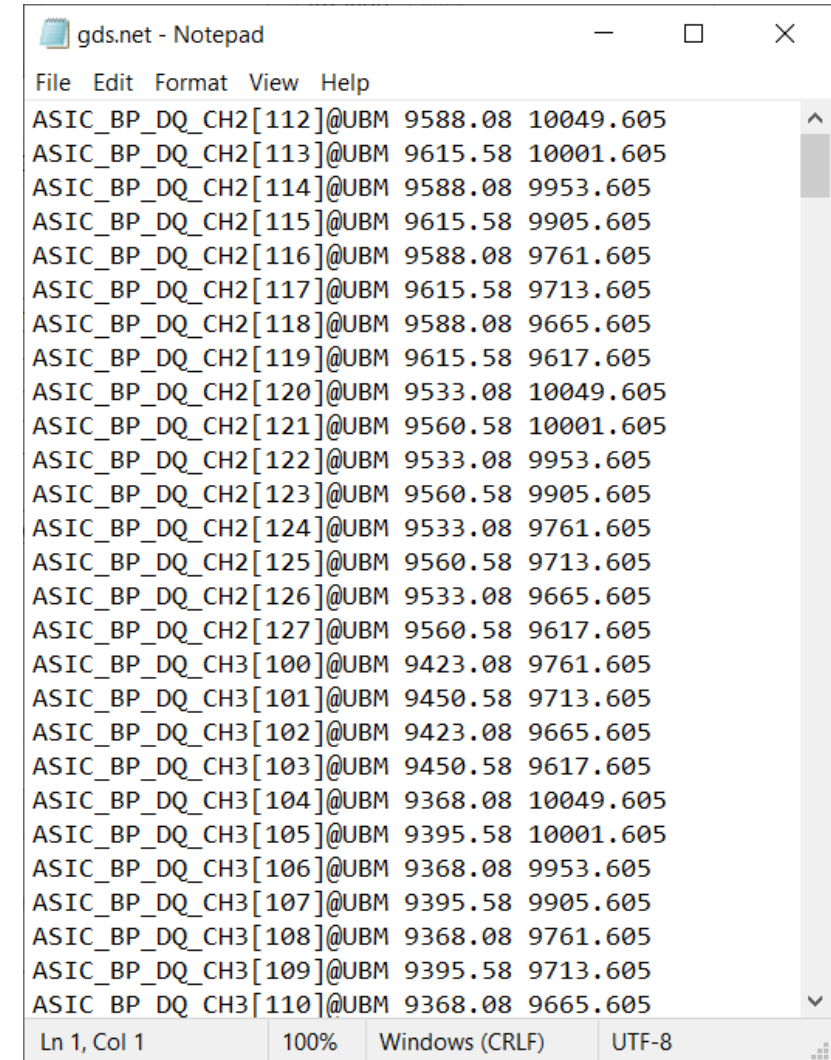
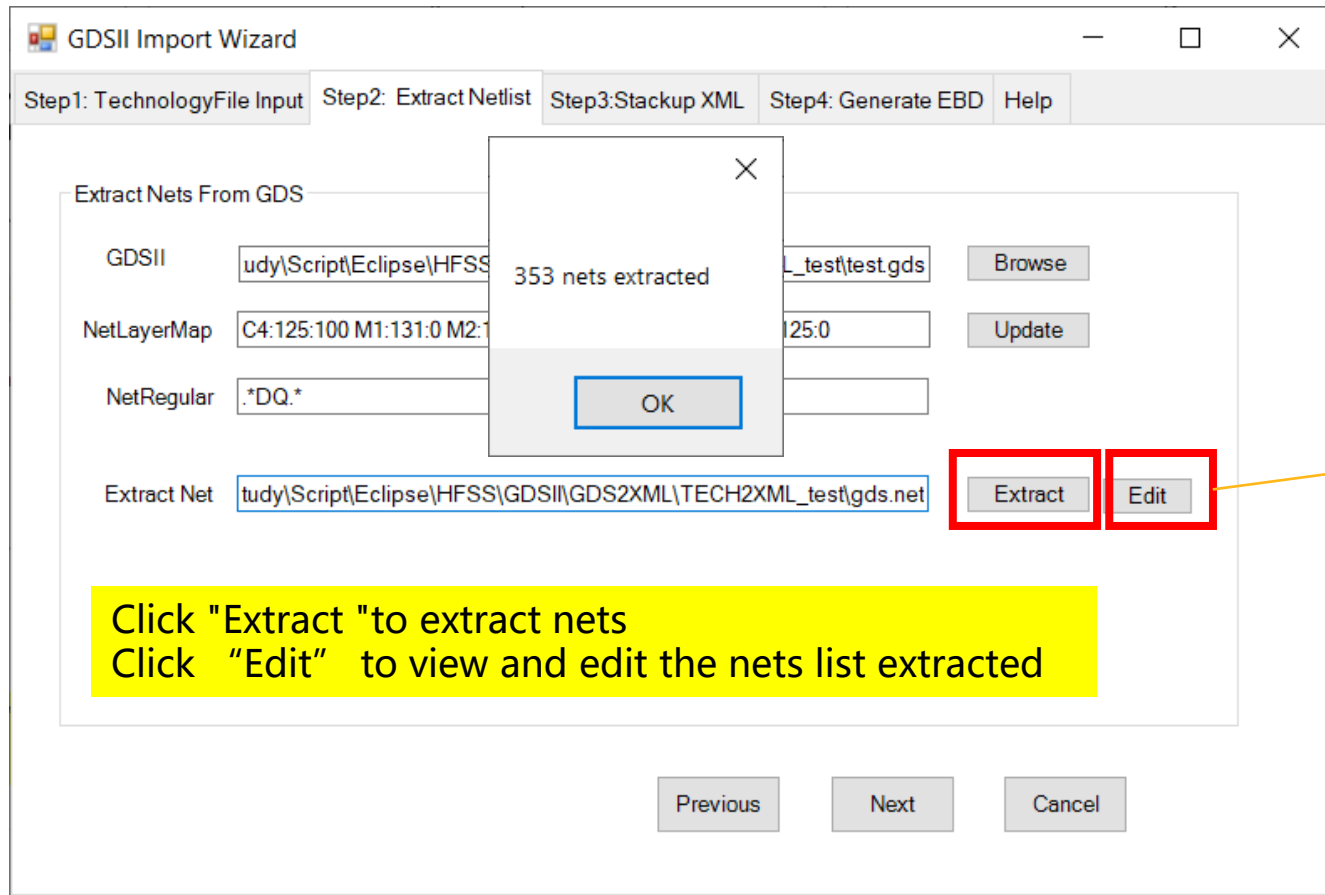
Previous Next Cancel

**GDSII:** set GDS File

**NetLayerMap:** GDS Layer include net information, click "Update" button to extract from layermap or IRCX.

**NetRegular:** Using regular expressions to filter nets extracted. Default is extracted all nets.

## Step2: Extract Nets information from GDSII



## Step3: Generate Stackup XML (Control file)

GDSII Import Wizard V3.1

Step1: TechnologyFile Input Step2: Extract Netlist Step3: Stackup XML Step4: Generate EBD

Generate Stackup XML

Stackup XML

☒ CreateViaGroups

MergeMethod  ☒ NoMergeTSVLayer

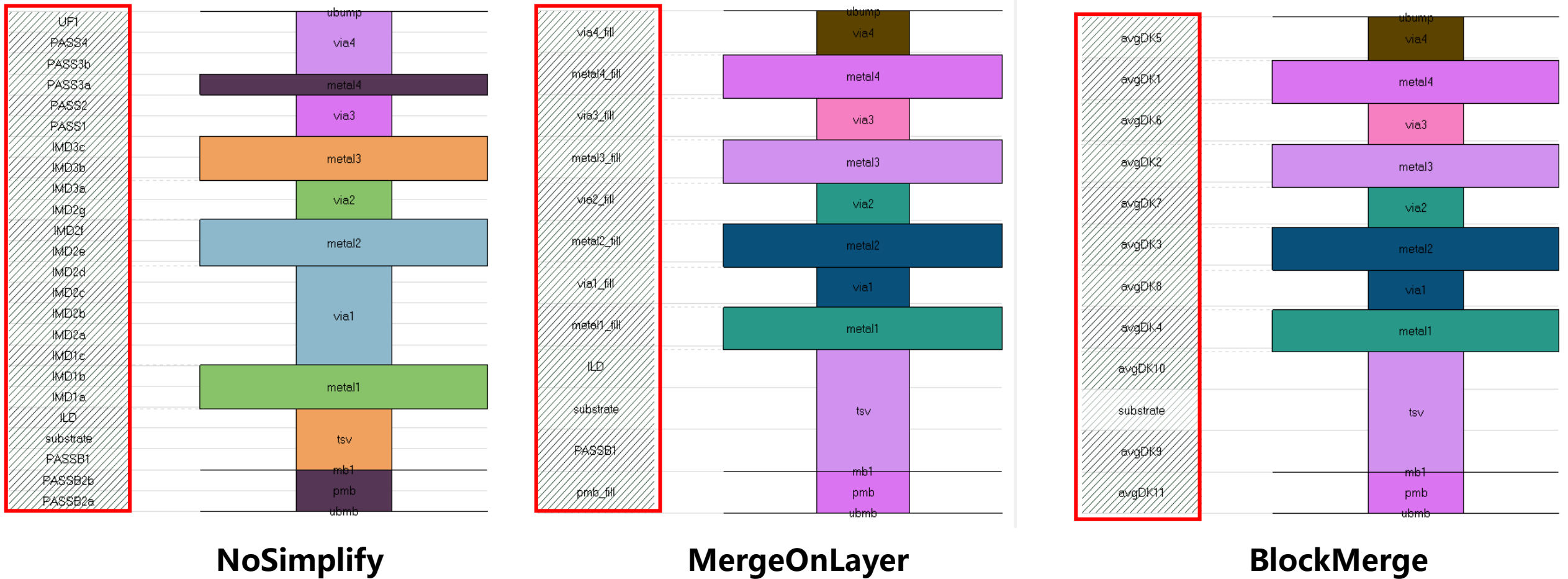
☐ LegacyXml(Laminate) ☐ UseDefaultDF

Previous  Cancel

Simplify Dielectric Method:  
**NoSimplify:** No Merge on Dielectric  
**MergeOnLayer:** Merge Dielectric on each conduct layer  
**BlockMerge:** use average DK on each conduct (except SI material)

## Step3: Generate Stackup XML (Control file)

- Simplify Dielectric Method compare





# Step3: Generate Stackup XML (Control file)

GDSII Import Wizard 2.0

Step1: TechnologyFile Input Step2: Extract Netlist Step3: Stackup XML

Generate Stackup XML

Stackup XML D:\Study\Script\repository\HFSS\GDSII\GDS2XML\TECH

SimplifyDielectric BlockMerge ☒ CreateViaGroup

MergeMethod **Weighted Average** ☒ NoMergeOnTS

☐ LegacyXml(Laminates) ☐ UseDefaultDF

Weighted Capacitance

Weighted Average

Previous

Method	Equation
Weighted Capacitance	$\epsilon_{r\_merged} = \frac{\sum_{i=1}^n h_i}{\sum_{i=1}^n \frac{h_i}{\epsilon_i}}$
Weighted Average	$\epsilon_{r\_merged} = \frac{\sum_{i=1}^n h_i \epsilon_i}{\sum_{i=1}^n h_i}$

There are Kraszewski (Kraszewski equation)

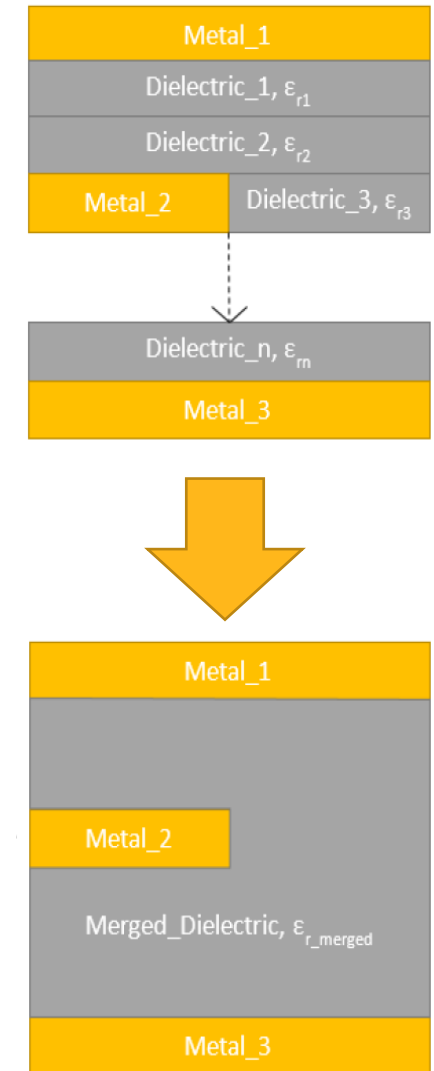
$$\sqrt{\epsilon^*} = v_1 \sqrt{\epsilon_1} + v_2 \sqrt{\epsilon_2} + v_3 \sqrt{\epsilon_3} \quad (1)$$

Landau, Lifshitz and Looyenga, (Landau equation)

$$\sqrt[3]{\epsilon^*} = v_1 \sqrt[3]{\epsilon_1} + v_2 \sqrt[3]{\epsilon_2} + v_3 \sqrt[3]{\epsilon_3} \quad (2)$$

Lichtenecker, (Lichtenecker equation)

$$\ln \epsilon^* = v_1 \ln \epsilon_1 + v_2 \ln \epsilon_2 + v_3 \ln \epsilon_3 \quad (3)$$



Merge Dielectric Method selection.

Merge Dielectric

Note: Merge Dielectric also can be done in 3d Layout stackup editor.

## Step3: Generate Stackup XML (Control file)

GDSII Import Wizard V3.0

Step1: TechnologyFile Input Step2: Extract Netlist Step3: Stackup XML Step4: Generate EBD

Generate Stackup XML

Stackup XML

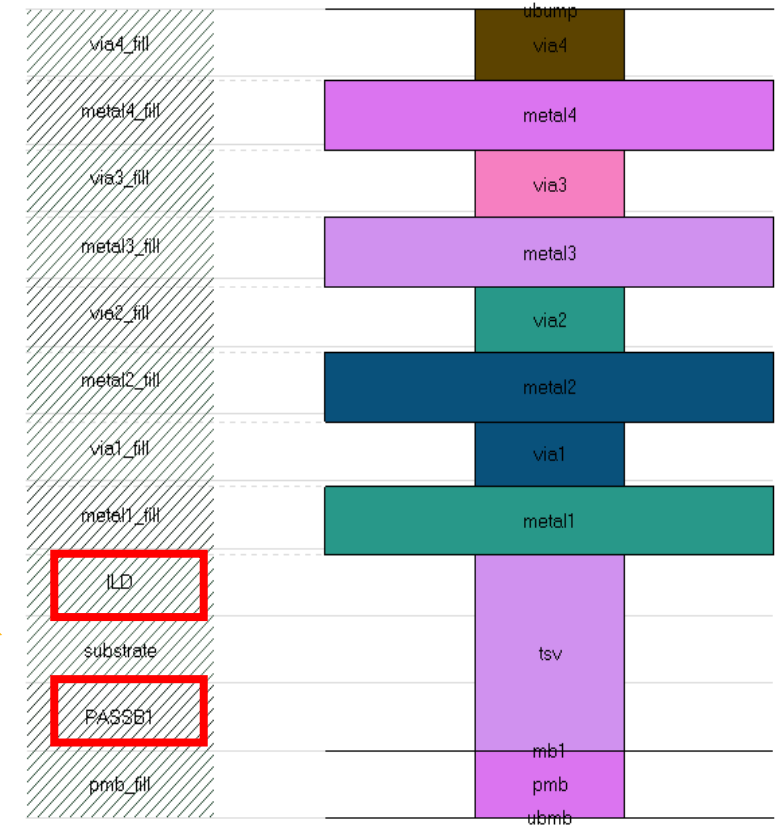
SimplifyDielectric MergeOnLayer ☒ CreateViaGroups

MergeMethod Weighted Average ☐ MergeTSVLayer

☐ LegacyXml(Laminate) ☐ UseDefaultDF 0.02

Previous Next Cancel

Keep Insulating layer above and below SI Substrate when Simplify Dielectric.



## Step3: Generate Stackup XML (Control file)

GDSII Import Wizard V3.1

Step1: TechnologyFile Input Step2: Extract Netlist Step3: Stackup XML Step4: Generate EBD

Generate Stackup XML

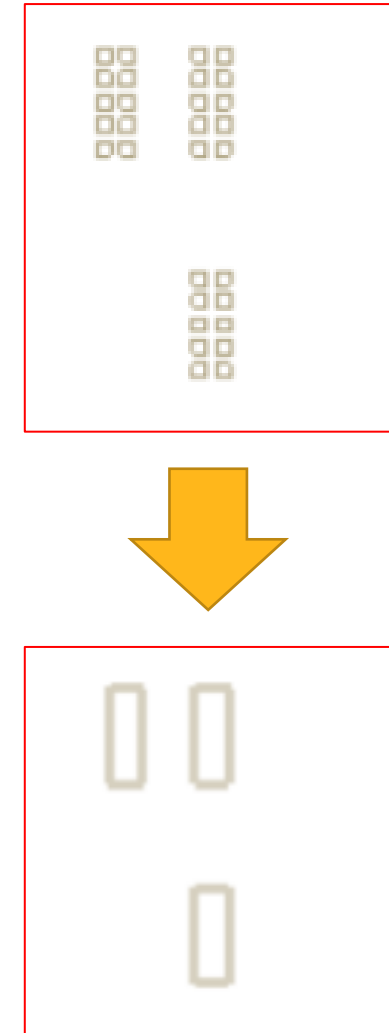
Stackup XML

SimplifyDielectric  ☒ CreateViaGroups

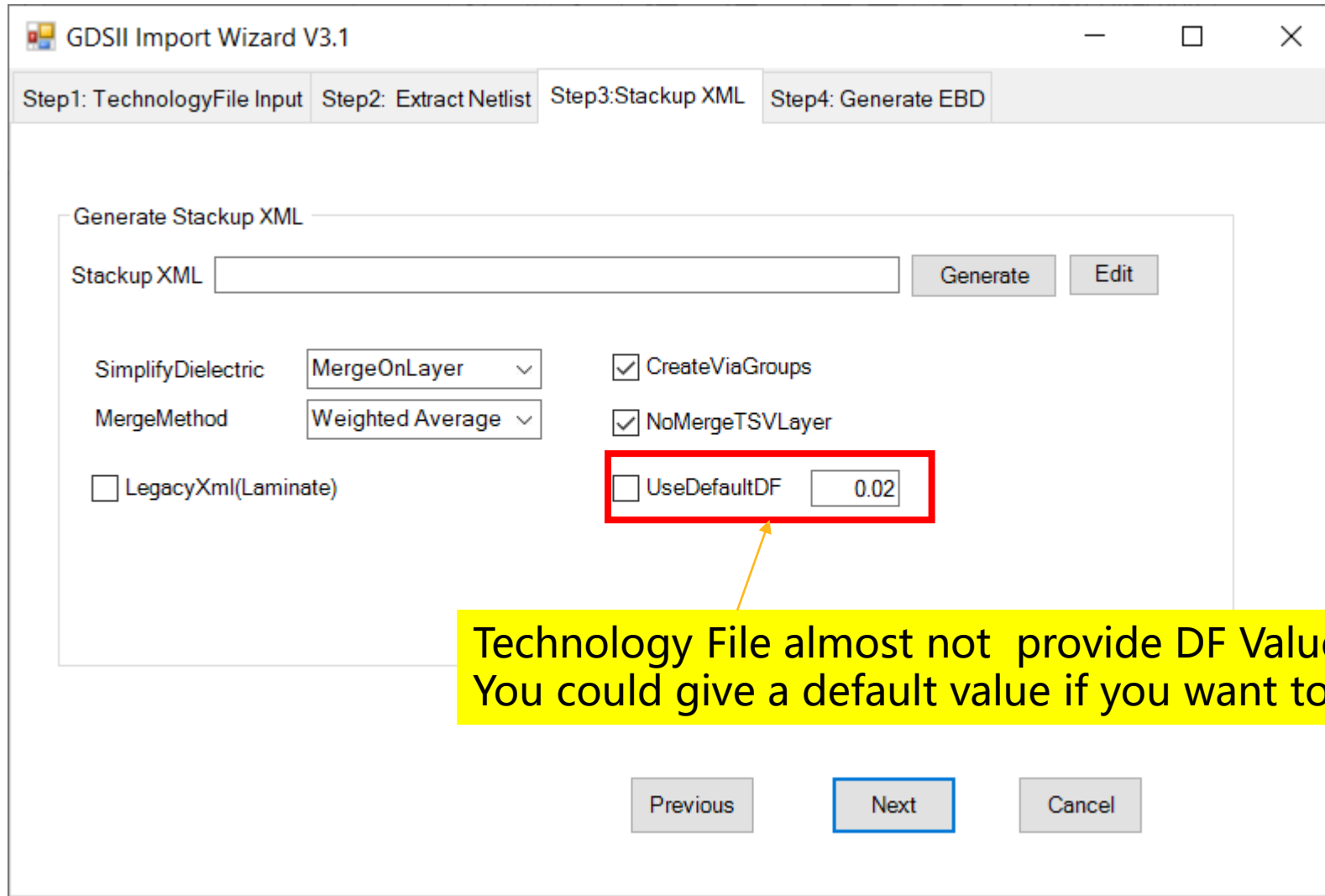
MergeMethod  ☒ NoMergeTSVLayer

☐ LegacyXml(Laminate) ☐ UseDefaultDF

Automatic create via groups on via layers.



## Step3: Generate Stackup XML (Control file)



GDSII Import Wizard V3.1

Step1: TechnologyFile Input Step2: Extract Netlist Step3: Stackup XML Step4: Generate EBD

Generate Stackup XML

Stackup XML  Generate Edit

SimplifyDielectric MergeOnLayer ☐ CreateViaGroups

MergeMethod Weighted Average ☒ NoMergeTSVLayer

☐ LegacyXml(Laminate) ☐ UseDefaultDF 0.02

Previous Next Cancel

Technology File almost not provide DF Value for all material. You could give a default value if you want to at here.

## Step3: Generate Stackup XML (Control file)

GDSII Import Wizard V3.1

Step1: TechnologyFile Input Step2: Extract Netlist Step3: Stackup XML Step4: Generate EBD

Generate Stackup XML

Stackup XML

SimplifyDielectric  ☒ CreateViaGroups

MergeMethod  ☒ NoMergeTSVLayer

☐ LegacyXml(Laminate) ☐ UseDefaultDF

LegacyXml Option is used to generate Laminate stackup. Laminate stackup could be used in any version AEDT and SIwave. But you need to CreateViaGroups in ECAD Xplorer manual in this mode.



By default, GDSImportWizard generate Overlapping stackup which could create ViaGroups automatically.

## Step3: Generate Stackup XML (Control file)

GDSII Import Wizard V3.1

Step1: TechnologyFile Input Step2: Extract Netlist Step3: Stackup XML Step4: Generate EBD

Generate Stackup XML

Stackup XML

SimplifyDielectric  ☒ CreateViaGroups

MergeMethod  ☒ NoMergeTSVLayer

☐ LegacyXml(Laminate) ☐ UseDefaultDF

Click "Generate" to generate Control xml after you check options.

## Step4: Generate EBD

GDSII Import Wizard V3.1

Step1: TechnologyFile Input Step2: Extract Netlist Step3: Stackup XML Step4: Generate EBD

Generate EBD

AEDT Installed Dir C:\Program Files\AnsysEM\AnsysEM20.2\Win64\

EBD File

☒ Import to AEDT ☒ Auto Generate Component

☒ Add TSV Insulator Ring 1e-6

Pull down and Select AEDT version (installed)

When checked, EBD will import to AEDT after generated

## Step4: Generate EBD

GDSII Import Wizard V3.1

Step1: TechnologyFile Input Step2: Extract Netlist Step3: Stackup XML Step4: Generate EBD

Generate EBD

AEDT Installed Dir: C:\Program Files\AnsysEM\AnsysEM20.2\Win64\ Browse

EBD File: Generate EBD

☒ Import to AEDT ☒ Auto Generate Component

☒ Add TSV Insulator Ring 1e-6

Open ECADExplorer Open in AEDT

Previous Finished Cancel

Components will be added on first and last layer after EBD import.

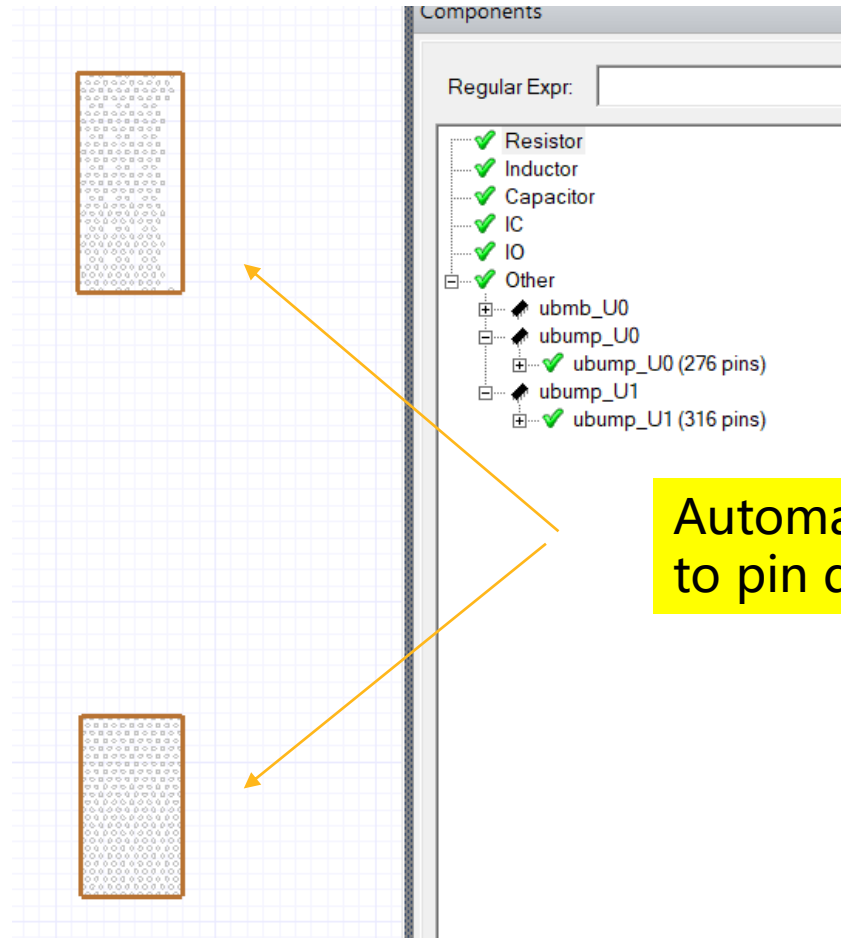
Components

Regular Expr:

- ☒ Resistor
- ☒ Inductor
- ☒ Capacitor
- ☒ IC
- ☒ IO
- ☒ Other
  - ☒ ubmb
    - ☒ ubmb (84 pins)
  - ☒ ubump
    - ☒ ubump (270 pins)



## Step4: Generate EBD



Automatically generate individual components according to pin distribution and spacing. (New in V3.x)

## Step4: Generate EBD

GDSII Import Wizard V3.1

Step1: TechnologyFile Input Step2: Extract Netlist Step3: Stackup XML Step4: Generate EBD

Generate EBD

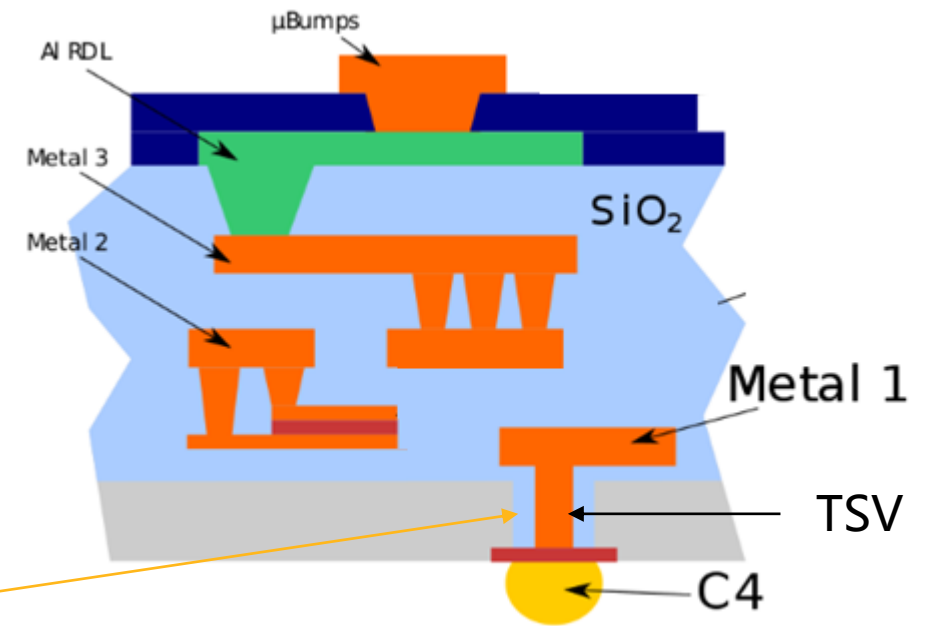
AEDT Installed Dir: C:\Program Files\AnsysEM\AnsysEM20.2\Win64\ Browse

EBD File: Generate EBD

☒ Import to AEDT ☒ Auto Generate Component

☒ Add TSV Insulator Ring 1e-6

Previous Finished Cancel



TSV Insulator Ring will be added in TSV layer after EBD imported. Ring thickness should be set a purpose value.

## Step4: Generate EBD

GDSII Import Wizard V3.1

Step1: TechnologyFile Input Step2: Extract Netlist Step3: Stackup XML Step4: Generate EBD

Generate EBD

AEDT Installed Dir C:\Program Files\AnsysEM\AnsysEM20.2\Win64\ Browse

EBD File

☒ Import to AEDT ☒ Auto Generate Component

☒ Add TSV Insulator Ring 1e-6

Open ECADExplorer Open in AEDT

Previous Finished Cancel

Generate EBD

Click "Generate" to generate EBD and AEDT file according settings.

# Imported Project

ANSYS Electronics Desktop 2020 R2 - comp - FCCC\_Interposer - Layout - [comp - FCCC\_Interposer - Layout]

File Edit View Project Draw Layout HFSS 3D Layout Tools Window Help

Save Cut Copy Paste Undo Redo Delete

FCCC\_Interposer

ubump

Zoom

Fit All

Fit Selected

Half Grid

XY Plane

90deg

Layout Settings

Desktop View Layout Simulation Results Automation

Project Manager

comp\*

FCCC\_Interposer\*

Circuit Elements

Boundaries

Excitations

Analysis

Cosim Option

HFSS Custom

Design Verification

Optimetrics

Results

Field Overlays

Properties

Name	Value
Setup	HFSS Custom Se
Enable	<input checked="" type="checkbox"/>
Solver	Custom
Passes	10
Percent ...	30
Delta S	0.02
Solution ...	10
	GHz

EM Design

Message Manager

comp (D:/Study/Script/repository/HFSS/GDSII/GDS2XML/TECH2XML\_test/TSMC-GDS-XML/)

Progress

Layers

Show Dielectrics

ump

a4

etal4

a3

etal3

a2

etal2

a1

etal1

y

o1

nb

mb

Measures

Slwave Regions

Rats

Errors

Symbols

Postprocessing

Outline

Components

Nets

Finish your simulation base on the project that imported from GDSImportWizard.

- ✓ Check the stackup thinness and material properties.
- ✓ Clip Design could be done in 3D layout to improve efficiency.
- ✓ If you want use Slwave solver, lagacyXML(Laminate) should be checked in step 3.

# Stackup and Material

Edit Layers - interposer

Stackup Layer Zone

Primary

- Display
- ☒ Stackup layers
  - ☐ Non-stackup layers
  - ☐ All layers

Stackup

Type:

Units:

							Name	Type	Material	Thickness	Etch	Rough	Solver
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	metal1	signal	metal1_cond	0.85um	<input type="checkbox"/>	<input type="checkbox"/>	0.
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ILD	dielectric	ILD	0.75um	<input type="checkbox"/>	<input type="checkbox"/>	0.
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	substrate	dielectric	substrate	100um	<input type="checkbox"/>	<input type="checkbox"/>	0.
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	tsv	via	tsv_cond	101.476um	<input type="checkbox"/>	<input type="checkbox"/>	m
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	mb1	signal	mb1_cond	0um	<input type="checkbox"/>	<input type="checkbox"/>	0.
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PASSB1	dielectric	PASSB1	0.8um	<input type="checkbox"/>	<input type="checkbox"/>	0.
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	pmb	via	pmb_cond	2.4um	<input type="checkbox"/>	<input type="checkbox"/>	ut
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	pmb_fill	dielectric	pmb_fill	2.399um	<input type="checkbox"/>	<input type="checkbox"/>	0r
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ubmb	signal	ubmb_cond	0um	<input type="checkbox"/>	<input type="checkbox"/>	0r

Layer

Insert above...

Insert below...

Remove

Select all

Edit selected

Name:

Type:

Material:

Thickness:

Top bottom:

Visibility

- ☒
- ☒
- ☒
- ☒
- ☒

Attributes

- ☐ Negative
  - ☒
  - ☐
- 100%

Analysis

- ☐ Etch
  - ☐ Rough
  - ☐ Solver
- Roughness...
- Solver...

View / Edit Material

Material Name:

Properties of the Material

Name	Type	Value	Units
Relative Permittivity	Simple	11.9	
Relative Permeability	Simple	1	
Bulk Conductivity	Simple	10	siemens/m
Dielectric Loss Tangent	Simple	0	
Magnetic Loss Tangent	Simple	0	

View/Edit Material for

- ☒ Active Design
- ☐ Active Project
- ☐ All Properties

Physics:

- ☒ Electromagnetic
- ☐ Thermal
- ☐ Structural

Material Appearance

- ☐ Use Material Appearance

Color:

Transparency:

Validate Material

Notes:

Set Frequency Dependency... Calculate Properties for:

Reset OK Cancel

PASSB1 Relative Permeability: 1

pmb\_fill mb1

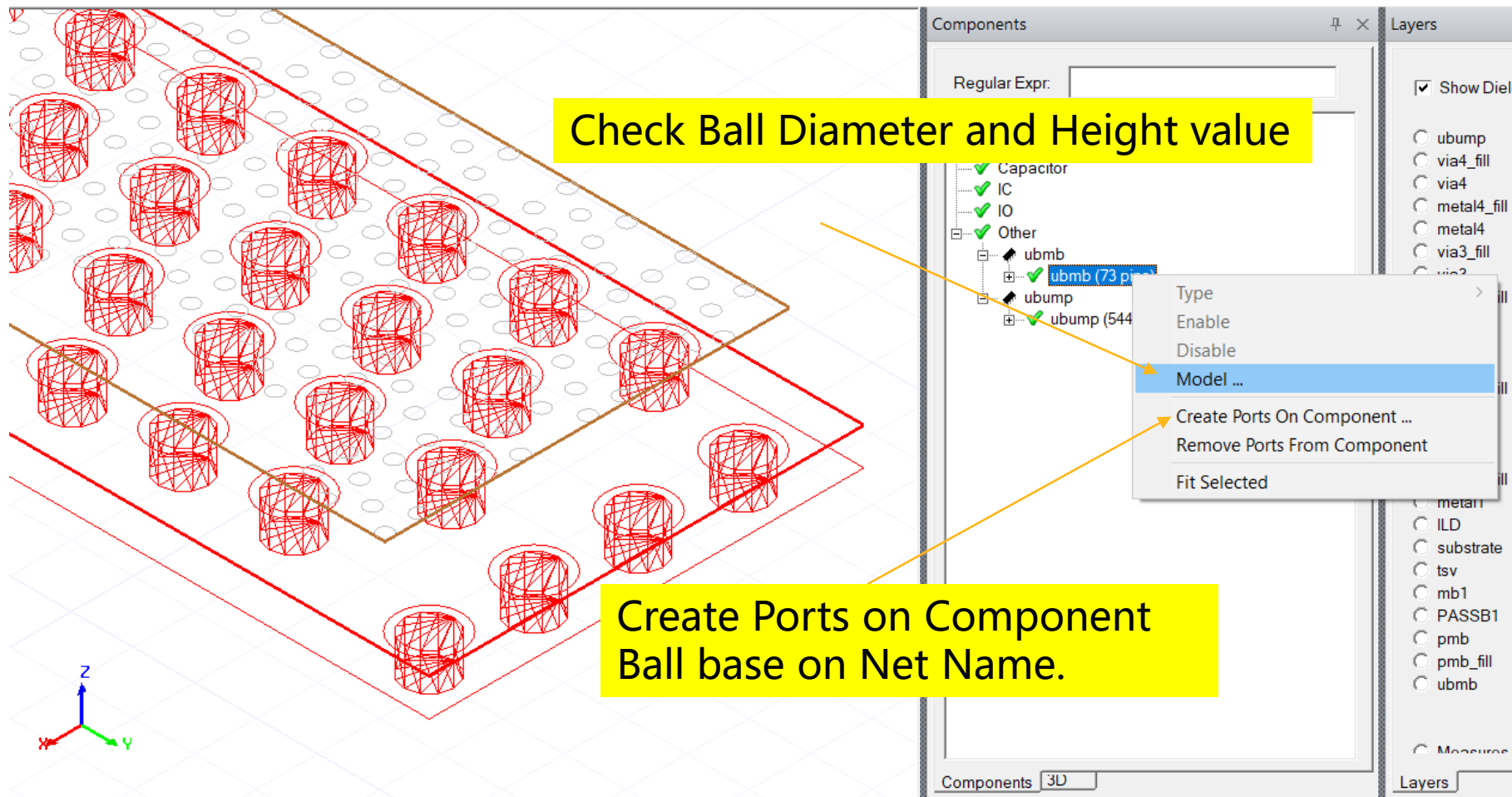
pmb ubmb

Total height 0.145913mm

Apply and Close Apply Close

Check Bulk Conductivity for Substrate Material

# Component solder ball and port



**Component Model**

Component Info

Part Name: ubmb

Part Type: Other

Ref Des: ubmb

No. Pins: 73

Model Interface

Interface: Manual

Solder Ball Properties

Shape: Cylinder

Diameter: 80um

Mid Diameter: 0mm

Height: 60um

Material: solder

Port Properties

Reference Offset: 0

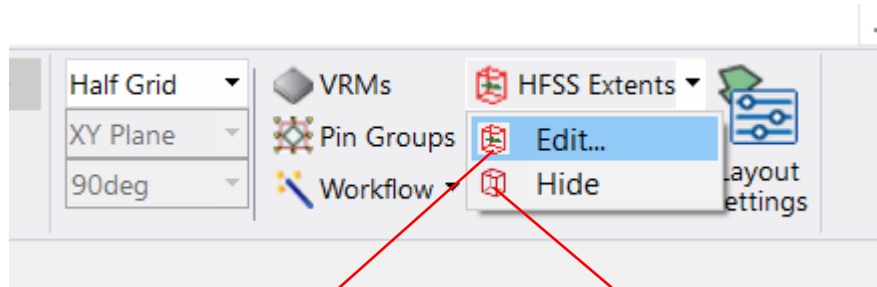
Reference Size: ☒ Auto

X: 0

Y: 0

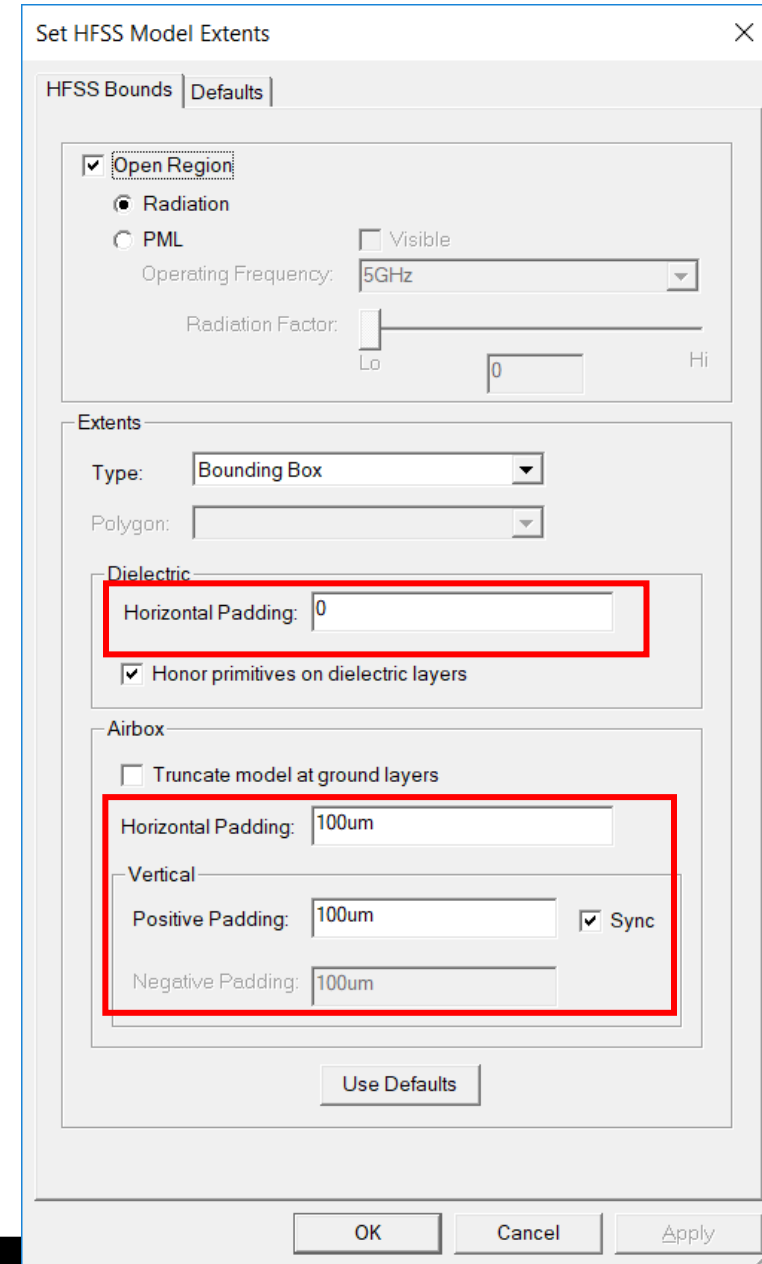
OK Cancel

# / Set HFSS Model Extents(Airbox)

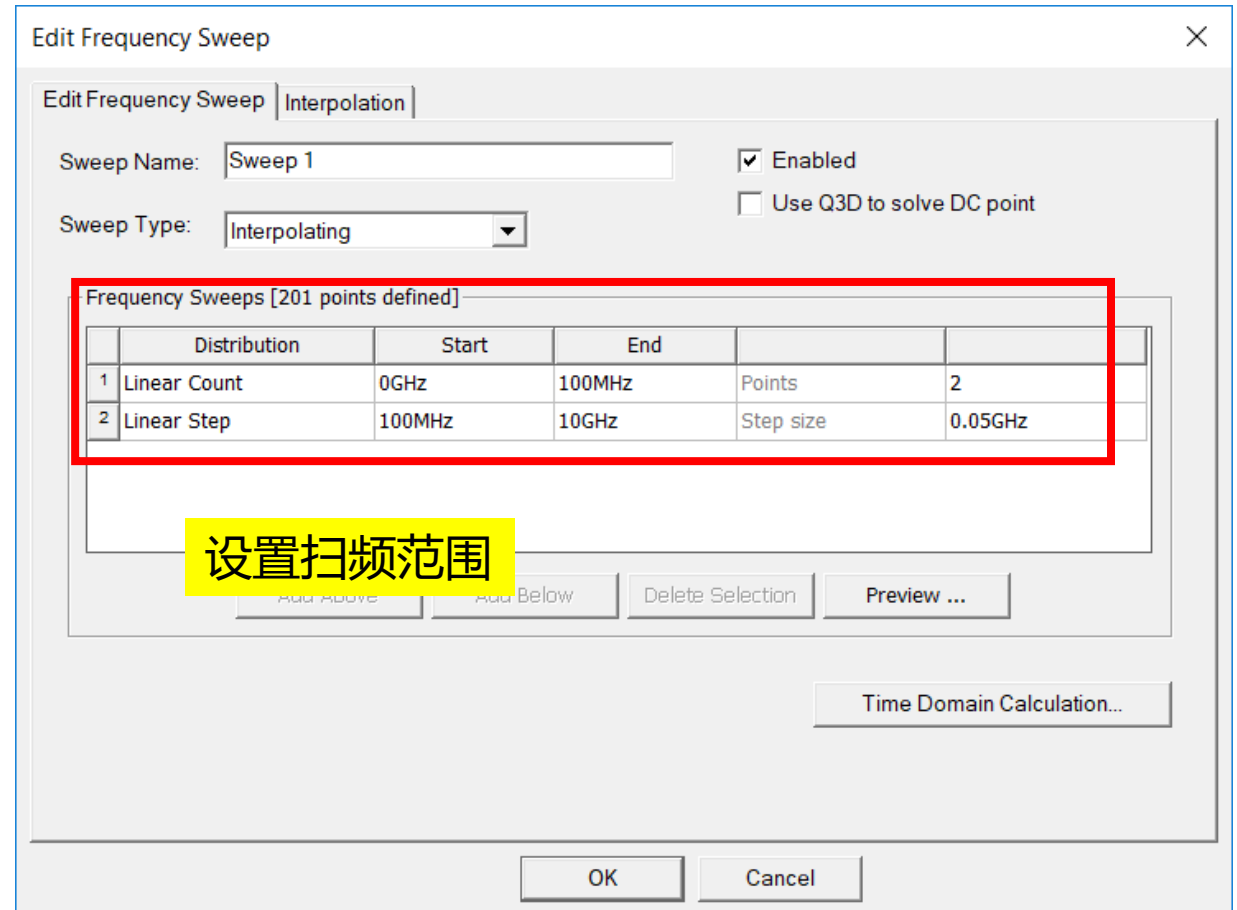
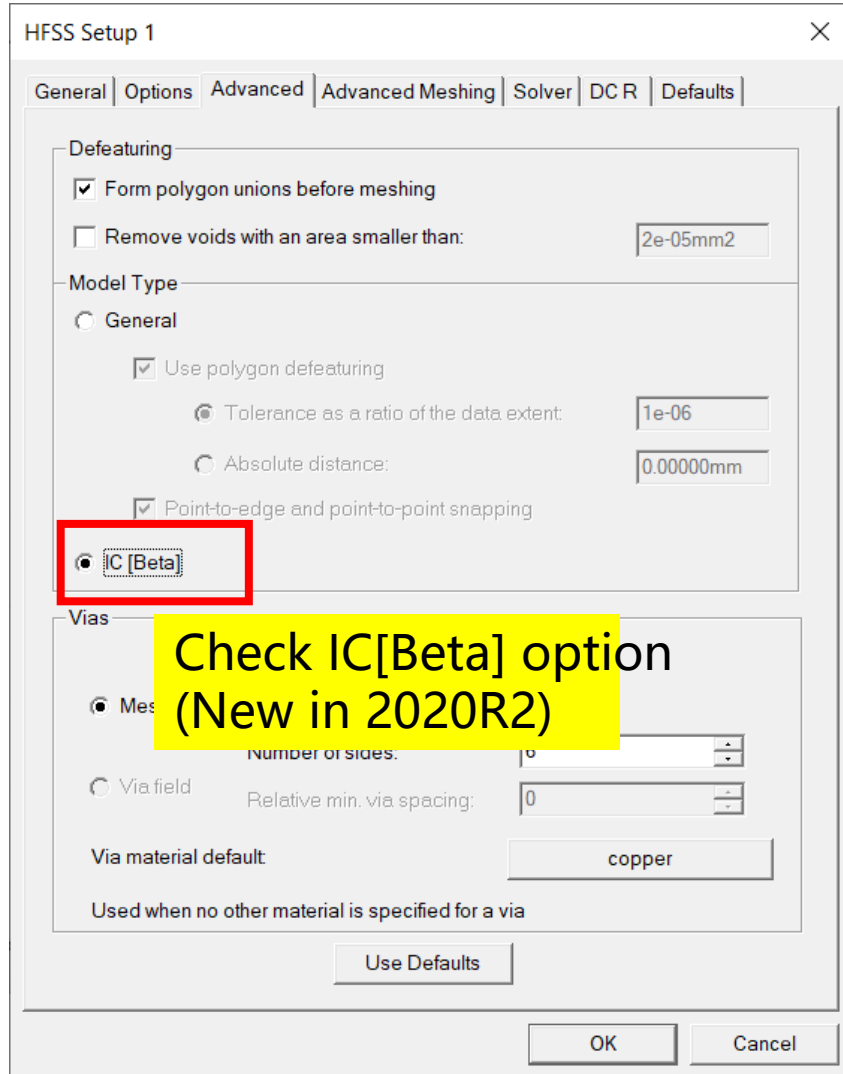


Edit Airbox

Show Airbox

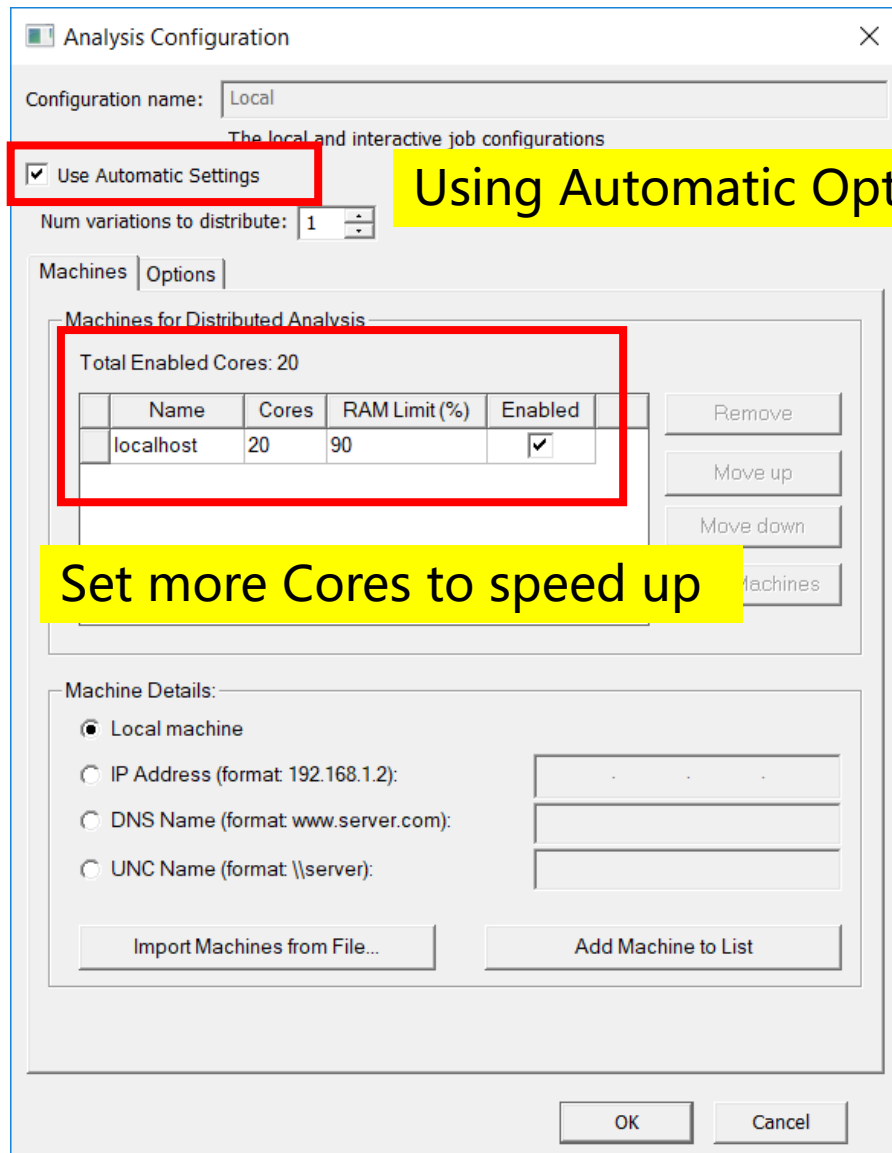


# HFSS Setup



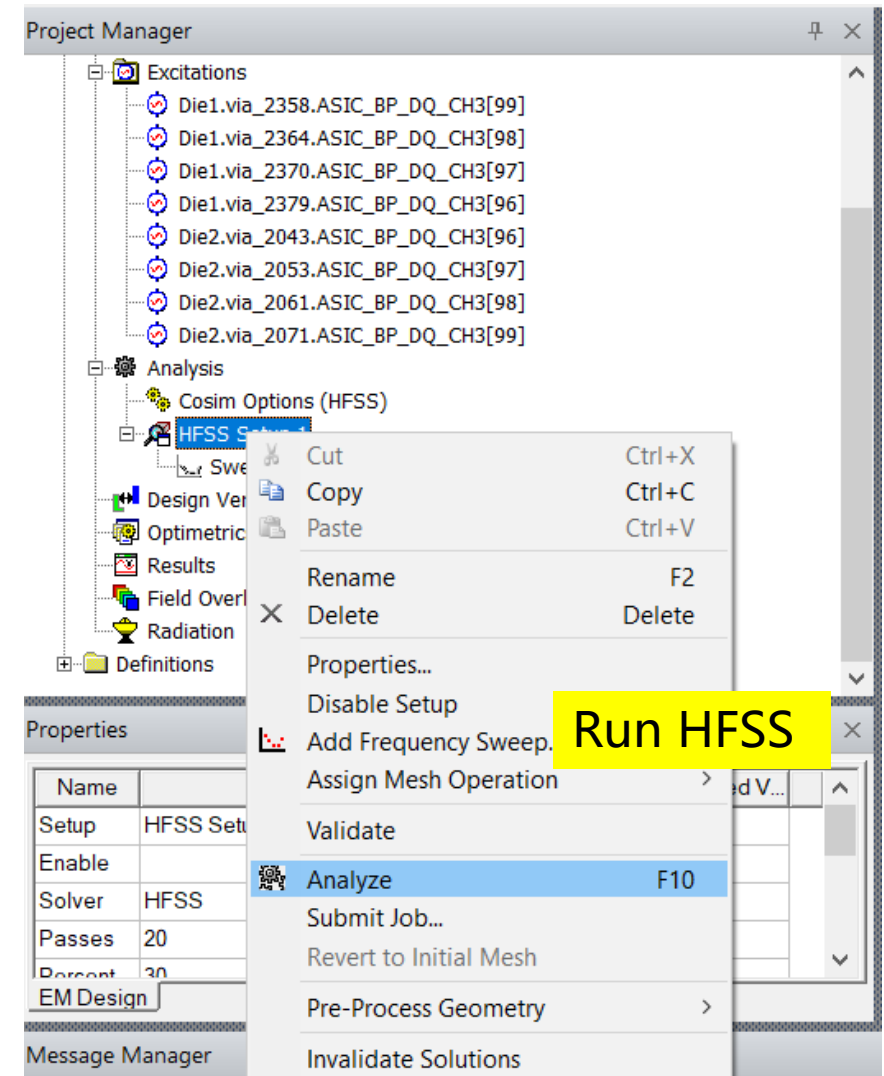


# Run Simulation



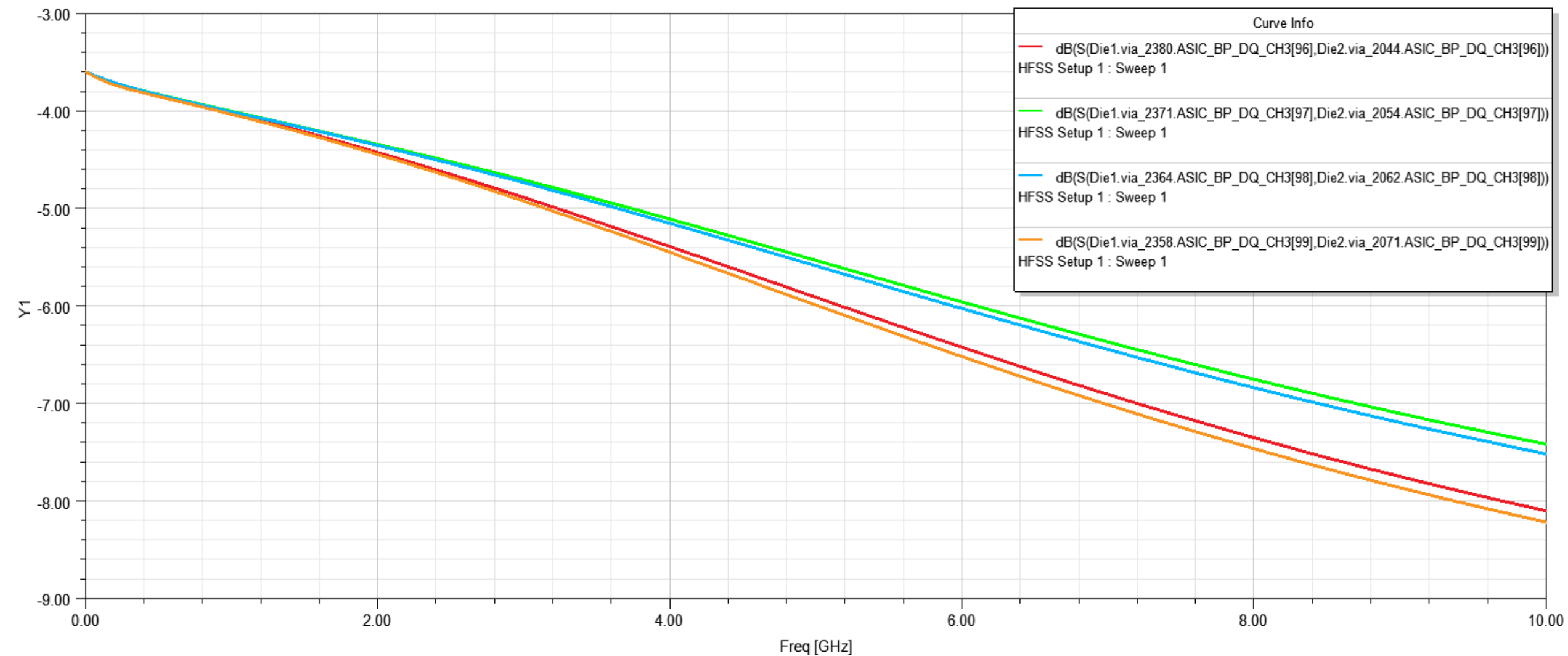
Using Automatic Option

Set more Cores to speed up



# S Parameter Plot 1

interposer\_cutout ANSYS





# Running in Batch Mode

- *set aedtInstallPath=C:\Program Files\AnsysEM\AnsysEM20.2\Win64*
- *set gdsPath=D:\HFSS\GDSII\GDS2XML\TECH2XML\_test\test.gds*
- *set ircxPath=D:\HFSS\GDSII\GDS2XML\TECH2XML\_test\TSMC\_INTERPOSER.ircx*
- *set path=%aedtInstallPath%\common\IronPython;%path%*
- *ipy64 GDSImportWizard.py -batch*
- Optional Setting
  - *set netlistPath=D:\HFSS\GDSII\GDS2XML\TECH2XML\_test\test.net*
  - *set xmlPath=D:\HFSS\GDSII\GDS2XML\TECH2XML\_test\test.xml*
  - *set edbPath=D:\HFSS\GDSII\GDS2XML\TECH2XML\_test\test.aedb*

# / Running in batch mode - Linux

Return

- *export aedtInstallPath='/home/ansys/app/AnsysEM20.1/Linux64'*
- *export gdsPath=/home/ansys/yguo/test/test.gds*
- *export ircxPath=/home/ansys/yguo/test/TSMC\_INTERPOSER.ircx*
- *export ipy64="\$aedtInstallPath/common/mono/Linux64/bin/mono \$aedtInstallPath/common/IronPython/ipy64.exe"*
- *\$ipy64 GDSImportWizard.py -batch*
- Optional Setting
- `export netlistPath=D:\HFSS\GDSII\GDS2XML\TECH2XML_test\test.net`
- `export xmlPath=D:\HFSS\GDSII\GDS2XML\TECH2XML_test\test.xml`
- `export edbPath=D:\HFSS\GDSII\GDS2XML\TECH2XML_test\test.aedb`

 **Ansys**

