

Getting Confidence
in Your Design Early!

跨界整合 翻轉設計

Graser User Conference

Taipei

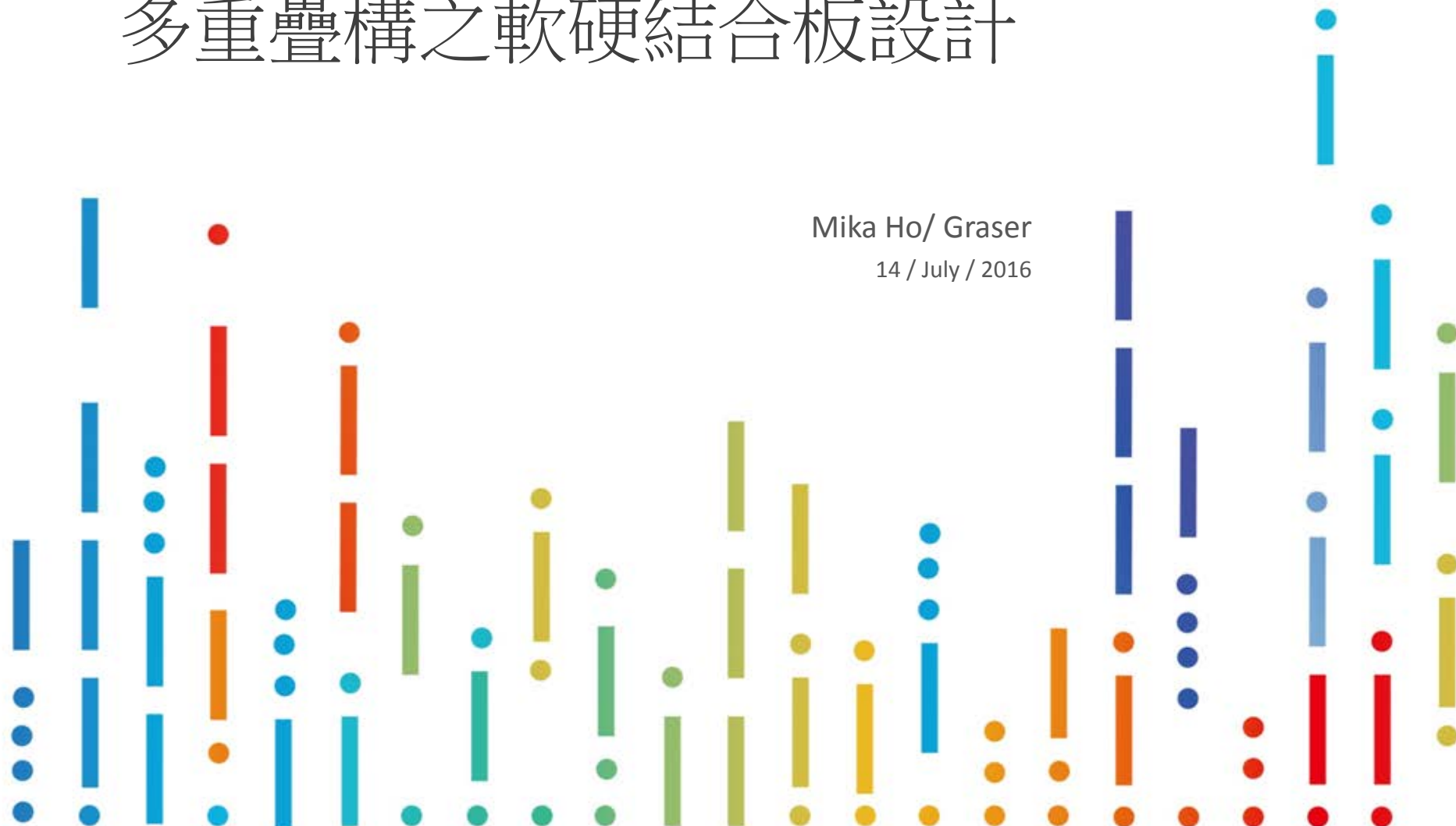
2016
7.14



Layout 流程新思維： 多重疊構之軟硬結合板設計

Mika Ho/ Graser

14 / July / 2016



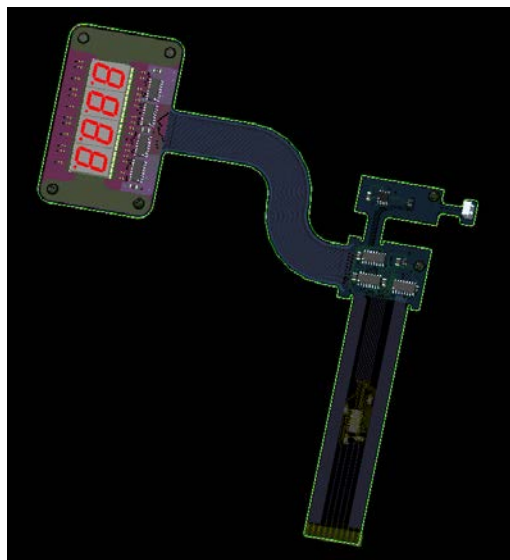
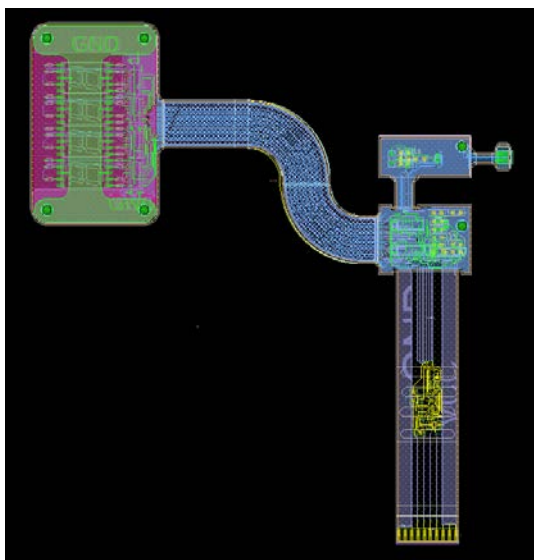
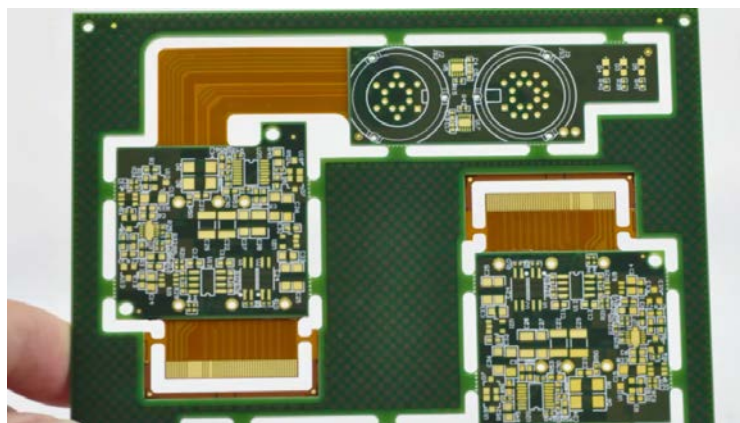
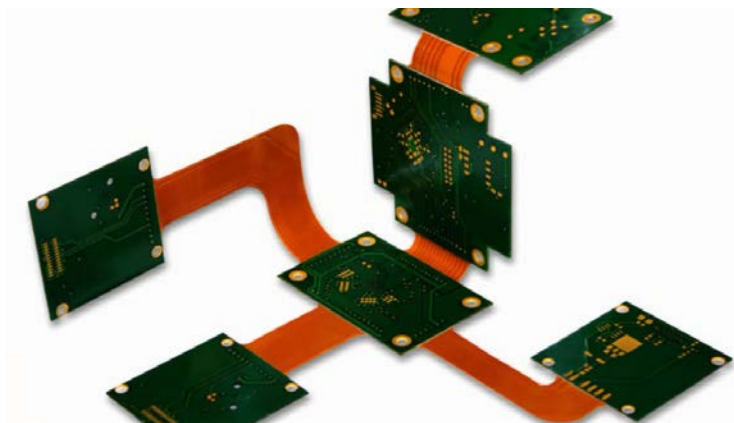
Topic

- Rigid-Flex PCB Design
- New Rigid-Flex Class & Subclass
- New Surface finishes Class & Subclass
- Multi Stackups Mode
 - Support IPC-2581
- Adding Non-Conductor Layers to the Cross Section
 - Pre-Defined by Cadence
 - Site-Defined by User
 - Layer Function
- Physical Zone Management
 - Create Zone
 - Management
- Layer Stackup of Visibility
- Placement
 - Quick Place by Room
 - Dynamic Zoom Placement
- Enhanced Contour Routing
- Inter Layer Checks (ILC)
- Multiple Stackup Table



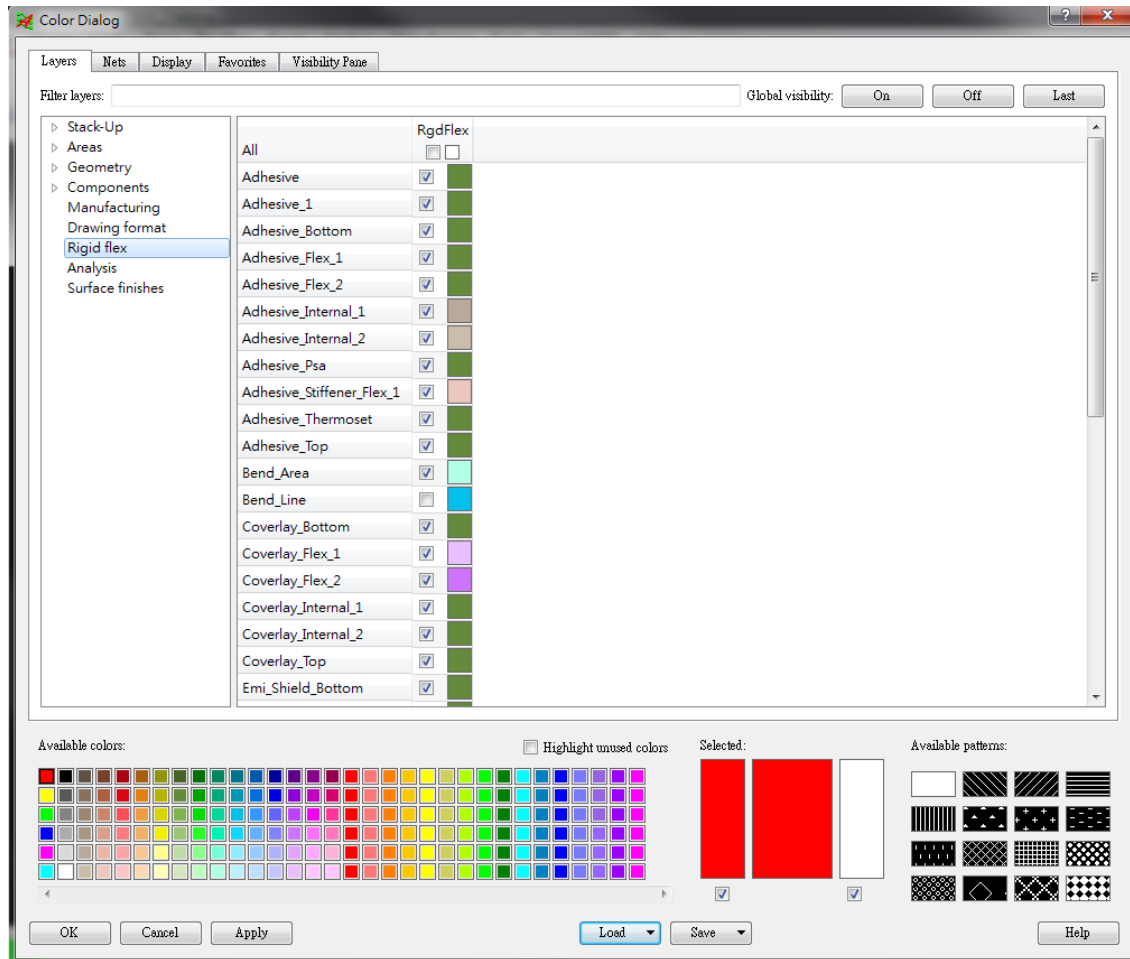
多重疊構之軟硬結合板設計

- Rigid-Flex PCB Design



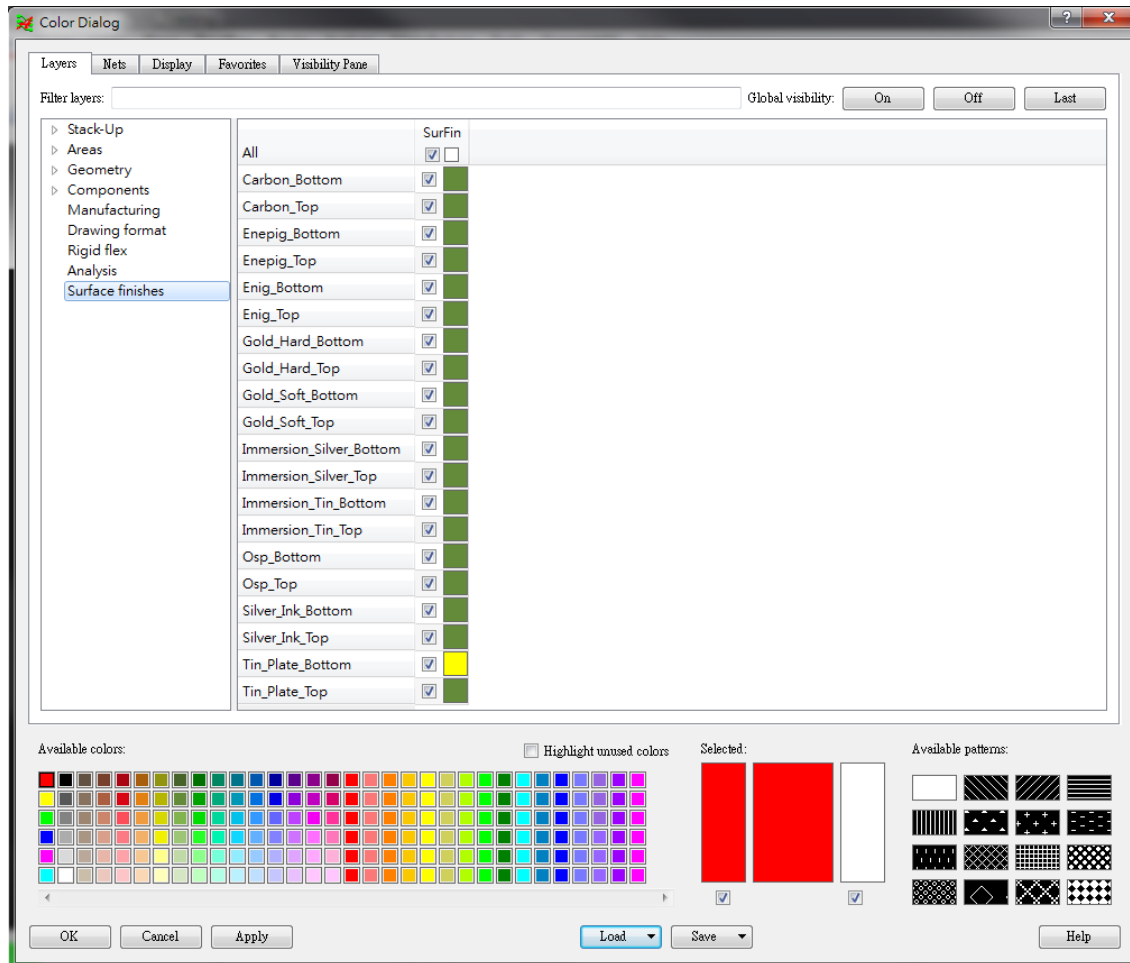
多重疊構之軟硬結合板設計

- New Rigid-Flex Class & Subclass



多重疊構之軟硬結合板設計

- New Surface finishes Class & Subclass



多重疊構之軟硬結合板設計

Multi Stackups Mode

The screenshot displays the Cross Section Editor (Multi Stackups mode) interface. The main window is divided into a table of stackup layers and a cross-section diagram.

Objects	Types	Thickness	Material	Primary	Flex-1	Flex-2	Flex-3	Flex-4	Rigid-2	Add Stackup
#	Name	Layer	mil							
*	*	*	*	*	*	*	*	*	*	*
	STIFFENER_FLEX_1	Surface		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	TIN_PLATE_TOP	Mask	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	ADHESIVE_STIFFENER_FLEX_1	Mask	0.5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	COVERLAY_FLEX_1	Mask	0.984252	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	ADHESIVE_FLEX_1	Mask	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	GOLD_SOFT_FLEX_1	Mask	0.5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	PASTERMASK_TOP	Mask	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	SOLDERMASK_TOP	Mask	3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	SOLDERMASK_INT1	Mask	0.590551	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	PASTERMASK_INT1	Mask	0.590551	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1	TOP	Conductor	1.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	INT_1	Dielectric	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	INT_1	Conductor	1.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	FLEX_1	Dielectric	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	FLEX_1	Conductor	1.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	FLEX_2	Dielectric	3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	FLEX_2	Conductor	1.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	INT_4	Dielectric	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5	INT_4	Conductor	1.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	BOTTOM	Dielectric	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6	BOTTOM	Conductor	1.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	PASTERMASK_BOTTOM	Mask	3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	SOLDERMASK_BOTTOM	Mask	0.590551	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	PASTERMASK_INT_4	Mask	0.5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	SOLDERMASK_INT_4	Mask	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	GOLD_HARD_FLEX_2	Mask	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	ADHESIVE_FLEX_2	Mask	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	COVERLAY_FLEX_2	Mask	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Surface		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

The cross-section diagram on the right shows the physical layout of the stackup layers, with labels for PRIMARY, FLEX-1, FLEX-2, FLEX-3, FLEX-4, and RIGID-2. The layers are color-coded: green for dielectric, orange for conductor, and grey for mask.

Below the table, there is a section for "All Stackups" and a "Refresh Materials" button. At the bottom, there is a "Info" tab with a list of parameters and a small diagram showing a cross-section of a via with dimensions (4), (2), (6), and (1).

Buttons: OK, Cancel, Apply, Help

多重疊構之軟硬結合板設計

- Multi Stackups Mode



多重疊構之軟硬結合板設計

- Multi Stackups Mode
 - Support IPC-2581

Cross Section Editor (Multi Stackups mode)

Export Import Edit View Filters

All stacks Technology File IPC2581 Flex-3 Flex-4 Rigid-2 +

#	Name	Types	Thickness	Material	Primary	Flex-1	Flex-2	Flex-3	Flex-4	Rigid-2	Add Stackup
		Layer	mil								
		Surface			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	STIFFENER_FLEX_1	Mask	8	Fr-4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	TIN_PLATE_TOP	Mask	0.5	Tin	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	ADHESIVE_STIFFENER_FLEX_1	Mask	0.984252	Adhesive E...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	COVERLAY_FLEX_1	Mask	8	Polyimide	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	ADHESIVE_FLEX_1	Mask	0.5	Adhesive A...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	GOLD_SOFT_FLEX_1	Mask	8	Polyimide	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	PASTEMASK_TOP	Mask	3	Solder Past...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	SOLDERMASK_TOP	Mask	0.590551	Soldermas...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	SOLDERMASK_INT1	Mask	0.590551	Soldermas...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	PASTEMASK_INT1	Mask	3	Solder Past...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
1	TOP	Conductor	1.2	Copper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		Dielectric	8	Fr-4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2	INT_1	Conductor	1.2	Copper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		Dielectric	5	Polyimide R...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
3	FLEX_1	Conductor	1.2	Copper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		Dielectric	3	Polyimide Fi...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4	FLEX_2	Conductor	1.2	Copper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		Dielectric	5	Polyimide R...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
5	INT_4	Conductor	1.2	Copper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		Dielectric	8	Fr-4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6	BOTTOM	Conductor	1.2	Copper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	PASTEMASK_BOTTOM	Mask	3	Solder Past...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	SOLDERMASK_BOTTOM	Mask	0.590551	Soldermas...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	PASTEMASK_INT_4	Mask	0.5	Adhesive A...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	SOLDERMASK_INT_4	Mask	8	Polyimide	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	GOLD_HARD_FLEX_2	Mask	8	Polyimide	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	ADHESIVE_FLEX_2	Mask	8	Polyimide	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	COVERLAY_FLEX_2	Mask	8	Polyimide	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		Surface			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

\All Stackups /



多重疊構之軟硬結合板設計

- Adding Non-Conductor Layers to the Cross Section

Cross Section Editor (Multi Stackups mode)

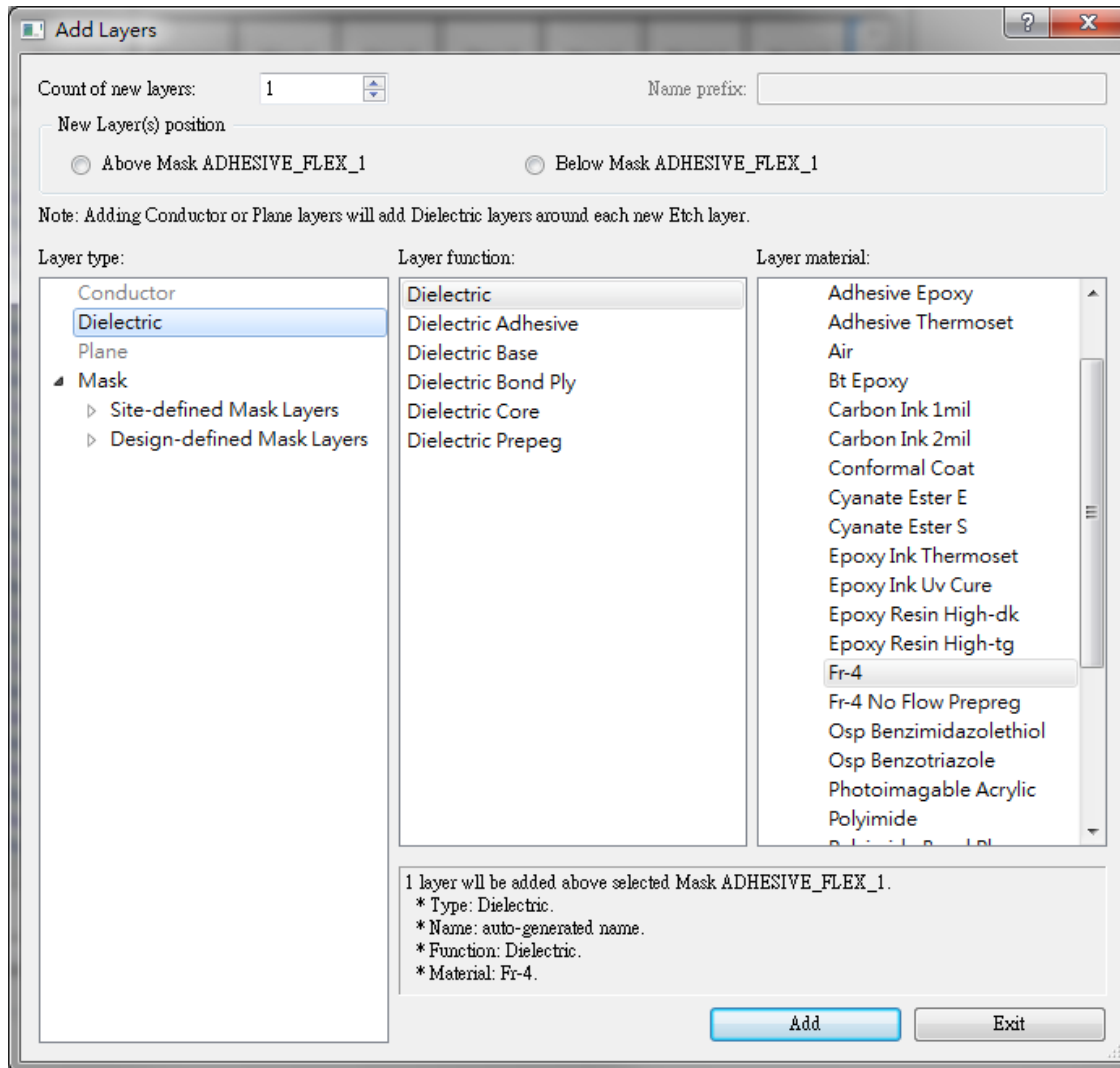
Export Import Edit View Filters

All stackups Primary Flex-1 Flex-2 Flex-3 Flex-4 Rigid-1 Rigid-2 +

Objects		Types	Thickness	Material	Primary	Flex-1	Flex-2	Flex-3	Flex-4	Rigid-1	Rigid-2
#	Name	Layer	mil								
		Surface			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	STIFFENER_FLEX_1	Mask	8	Fr-4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	ADHESIVE_STIFFENER_FLEX_1	Mask	0.984252	Adhesive E...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	COVERLAY_FLEX_1	Mask	8	Polyimide	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	ADHESIVE_FLEX_1	Mask	0.5	Adhesive A...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	SOFT_GOLD_FLEX_1			Polyimide	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	PASTEMASK_TOP			Solder Past...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	SOLDERMASK_TOP			Soldermas...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	SOLDERMASK_INT1			Soldermas...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	PASTEMASK_INT1			Solder Past...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1	TOP			Copper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	INT_1			Fr-4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
				Copper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	FLEX_1			Polyimide R...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
				Copper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	FLEX_2	Conductor	1.2	Copper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Dielectric	5	Polyimide R...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5	INT_4	Conductor	1.2	Copper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Dielectric	8	Fr-4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	BOTTOM	Conductor	1.2	Copper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	PASTEMASK_BOTTOM	Mask	3	Solder Past...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	SOLDERMASK_BOTTOM	Mask	0.590551	Soldermas...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	PASTEMASK_INT_4	Mask	0.5	Adhesive A...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	SOLDERMASK_INT_4	Mask	8	Polyimide	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	GOLD_MASK_FLEX_2	Mask	8	Polyimide	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	ADHESIVE_FLEX_2	Mask	8	Polyimide	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	COVERLAY_FLEX_2	Mask	8	Polyimide	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Surface			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

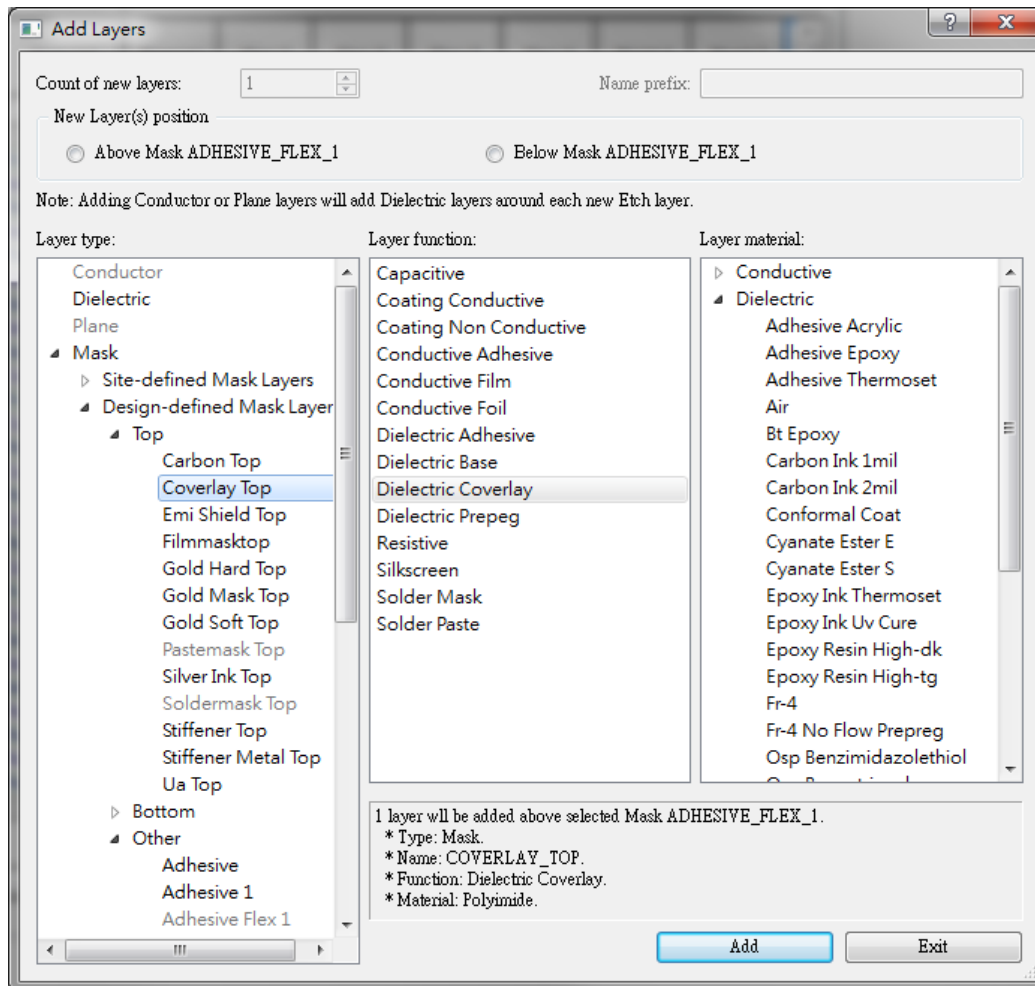
多重疊構之軟硬結合板設計

- Adding Non-Conductor Layers to the Cross Section



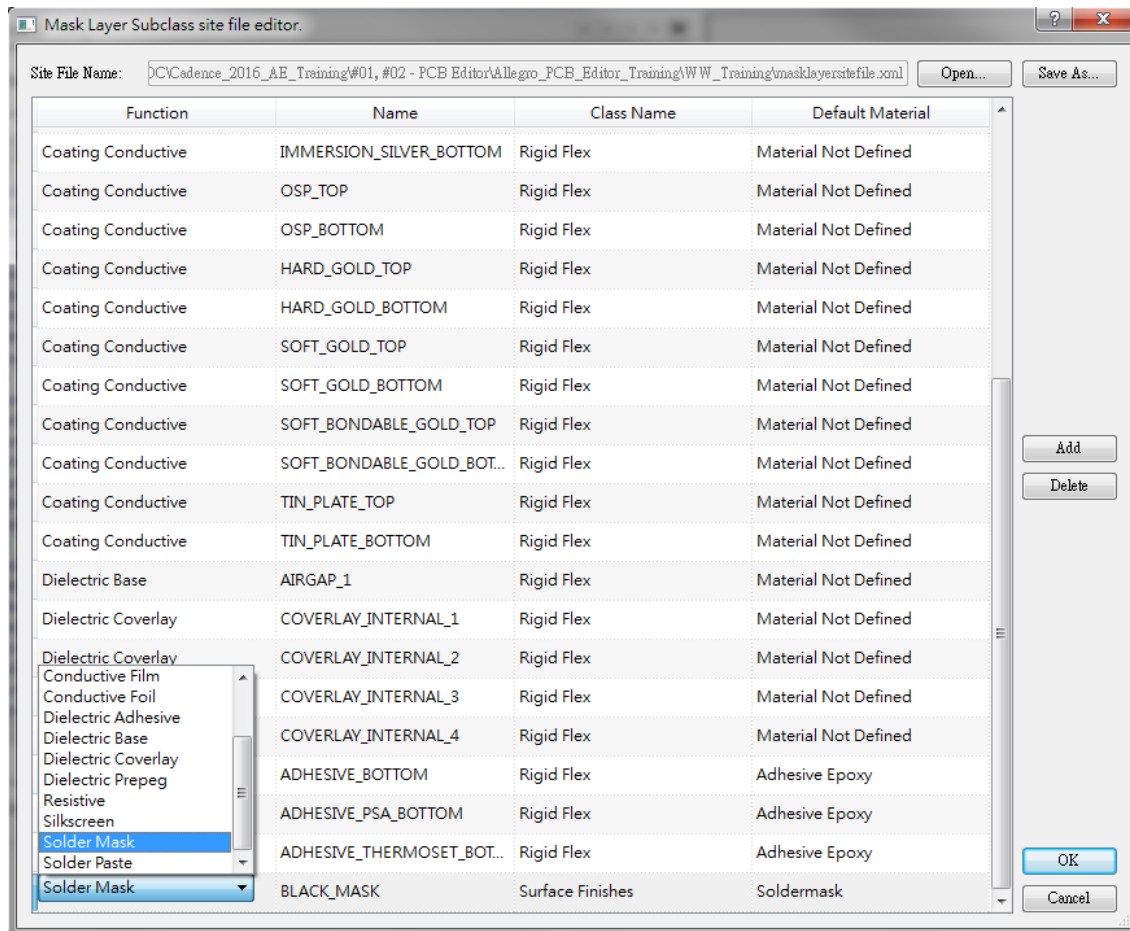
多重疊構之軟硬結合板設計

- Adding Non-Conductor Layers to the Cross Section
 - Pre-Defined by Cadence



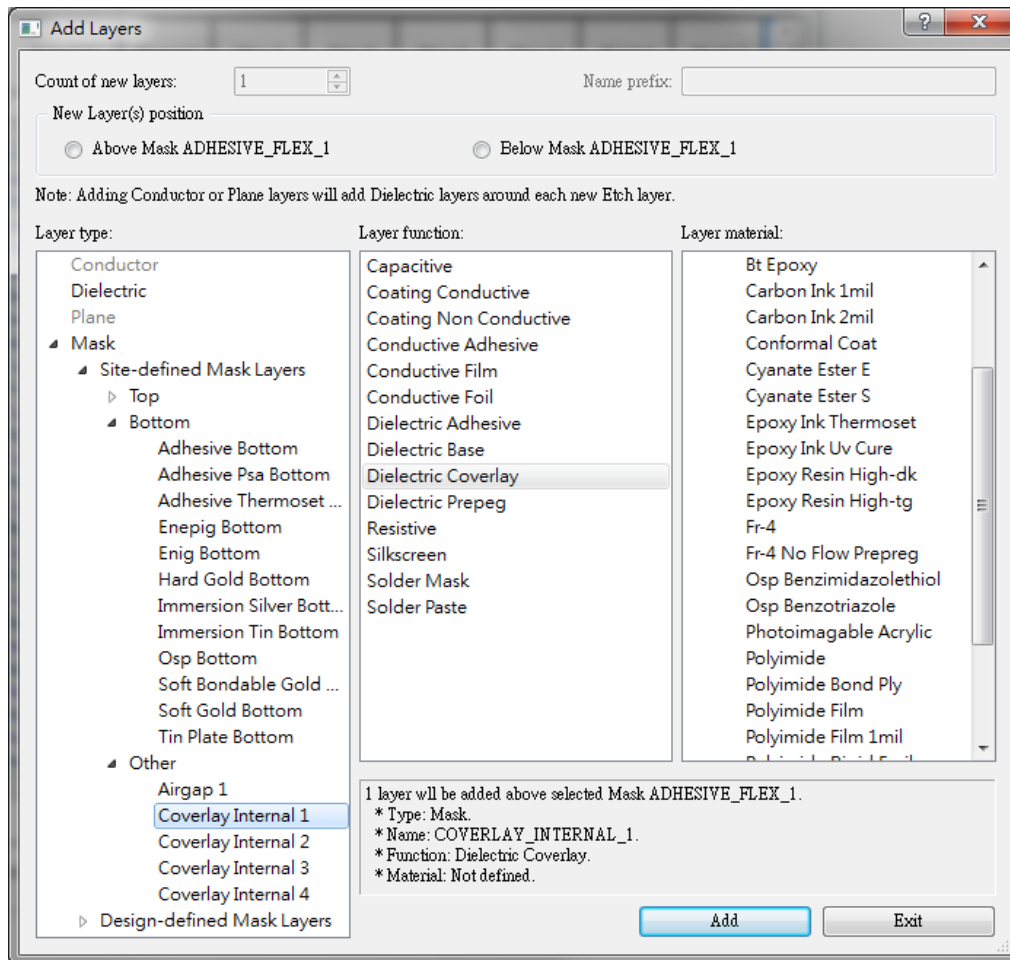
多重疊構之軟硬結合板設計

- Adding Non-Conductor Layers to the Cross Section
 - Site-Defined by User



多重疊構之軟硬結合板設計

- Adding Non-Conductor Layers to the Cross Section
 - Site-Defined by User



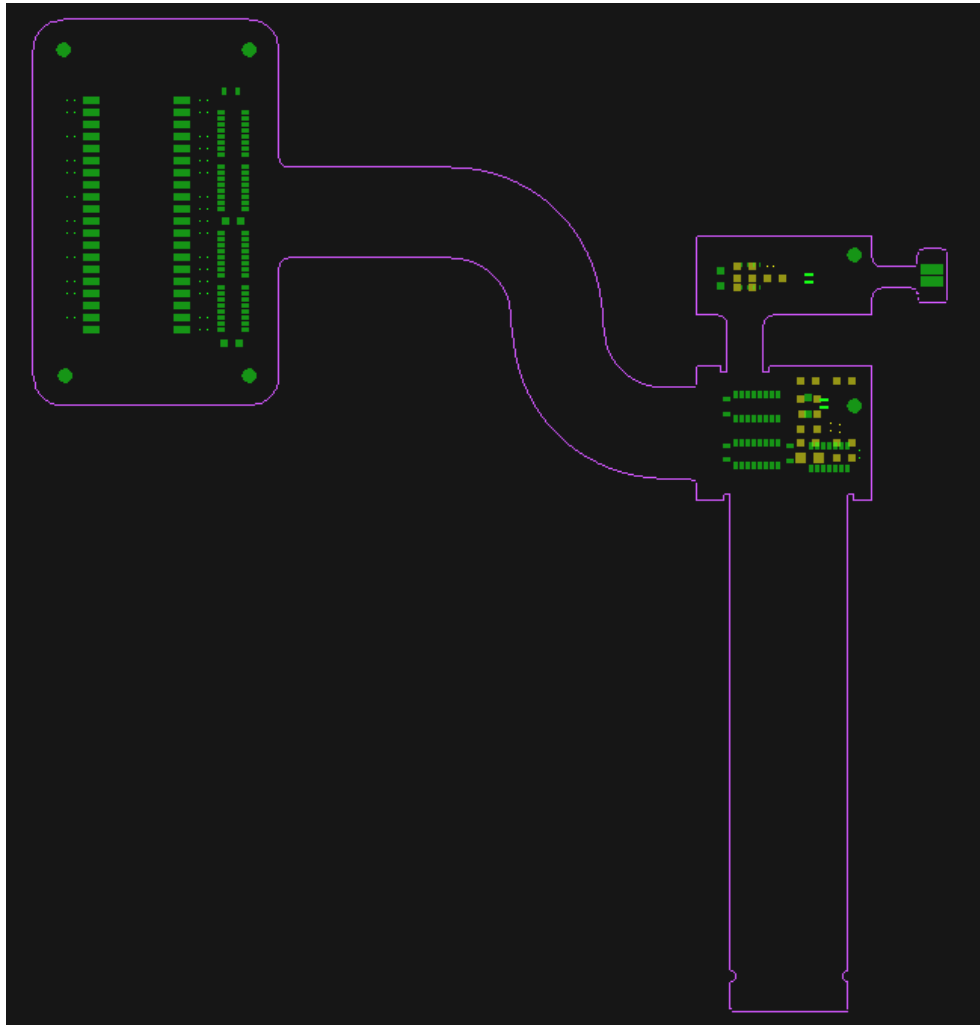
多重疊構之軟硬結合板設計

- Adding Non-Conductor Layers to the Cross Section
 - Layer Function

Objects		Types <<				Thickness >>		Physic	
#	Name	Layer	Layer Function	Manufacture	Constraint	Value mil	Layer ID	Material	Negative Artwork
		Surface							
	STIFFENER_FLEX_1	Mask	Conductive Foil			8		Fr-4	
	ADHESIVE_STIFFENER_FLEX_1	Mask	Dielectric Adhesive			0.984252		Adhesive E...	
	COVERLAY_FLEX_1	Mask	Dielectric Coverlay			8		Polyimide	
	ADHESIVE_FLEX_1	Mask	Dielectric Adhesive			0.5		Adhesive A...	
	SOFT_GOLD_FLEX_1	Mask	Coating Conductive			8		Polyimide	
	PASTEMASK_TOP	Mask	Solder Paste			3		Solder Past...	
	SOLDERMASK_TOP	Mask	Solder Mask			0.590551		Soldermas...	
	SOLDERMASK_INT1	Mask	Mask			0.590551		Soldermas...	
	PASTEMASK_INT1	Mask	Mask			3		Solder Past...	
1	TOP	Conductor	Conductor			1.2	1	Copper	<input type="checkbox"/>
		Dielectric	Dielectric			8		Fr-4	
2	INT_1	Conductor	Dielectric			1.2	2	Copper	<input type="checkbox"/>
		Dielectric	Dielectric Adhesive			5		Polyimide R...	
3	FLEX_1	Conductor	Dielectric Base			1.2	3	Copper	<input type="checkbox"/>
		Dielectric	Dielectric Bond Ply			3		Polyimide Fi...	
4	FLEX_2	Conductor	Dielectric Core			1.2	4	Copper	<input type="checkbox"/>
		Dielectric	Dielectric Prepeg			5		Polyimide R...	
5	INT_4	Conductor	Conductor			1.2	5	Copper	<input type="checkbox"/>
		Dielectric	Dielectric			8		Fr-4	
6	BOTTOM	Conductor	Conductor			1.2	6	Copper	<input type="checkbox"/>
	PASTEMASK_BOTTOM	Mask	Solder Paste			3		Solder Past...	
	SOLDERMASK_BOTTOM	Mask	Solder Mask			0.590551		Soldermas...	
	PASTEMASK_INT_4	Mask	Dielectric Adhesive			0.5		Adhesive A...	
	SOLDERMASK_INT_4	Mask	Dielectric Adhesive			8		Polyimide	
	GOLD_MASK_FLEX_2	Mask	Coating Conductive			8		Polyimide	
	ADHESIVE_FLEX_2	Mask	Dielectric Adhesive			8		Polyimide	
	COVERLAY_FLEX_2	Mask	Dielectric Coverlay			8		Polyimide	
		Surface							

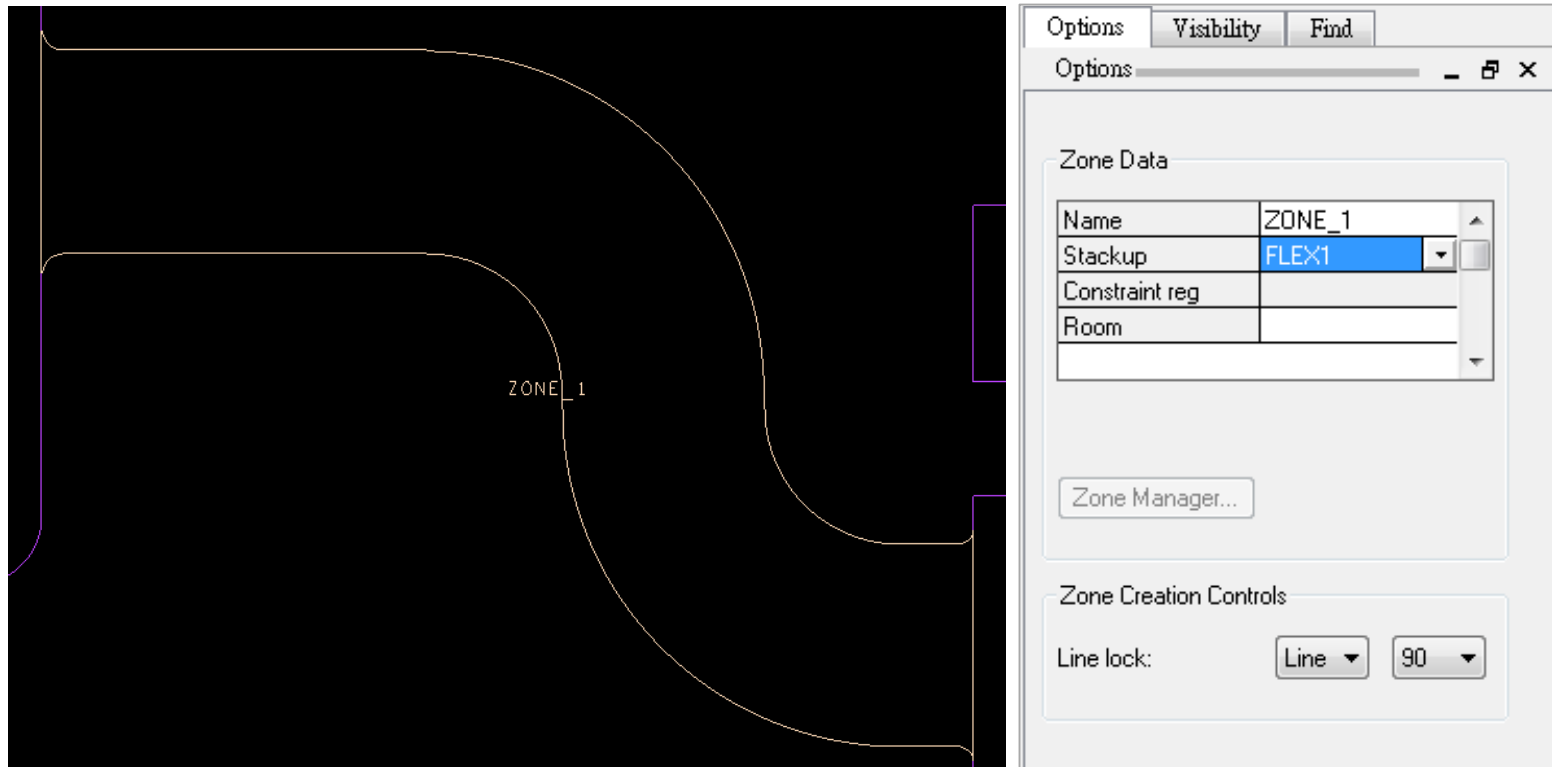
多重疊構之軟硬結合板設計

- Physical Zone Management



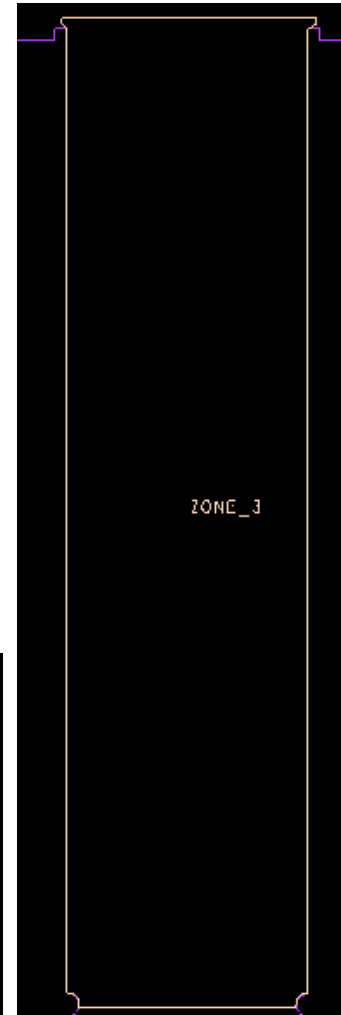
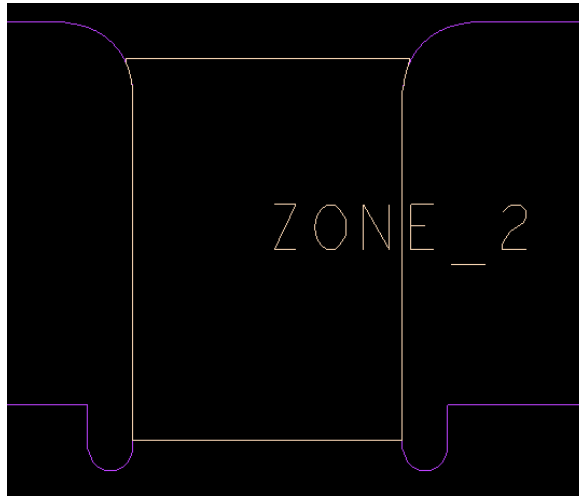
多重疊構之軟硬結合板設計

- Physical Zone Management
 - Create Zone



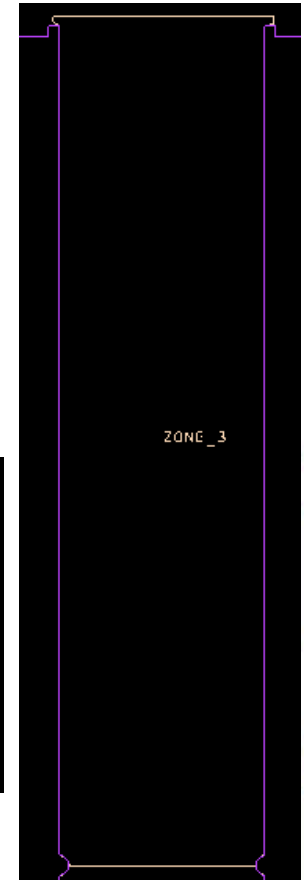
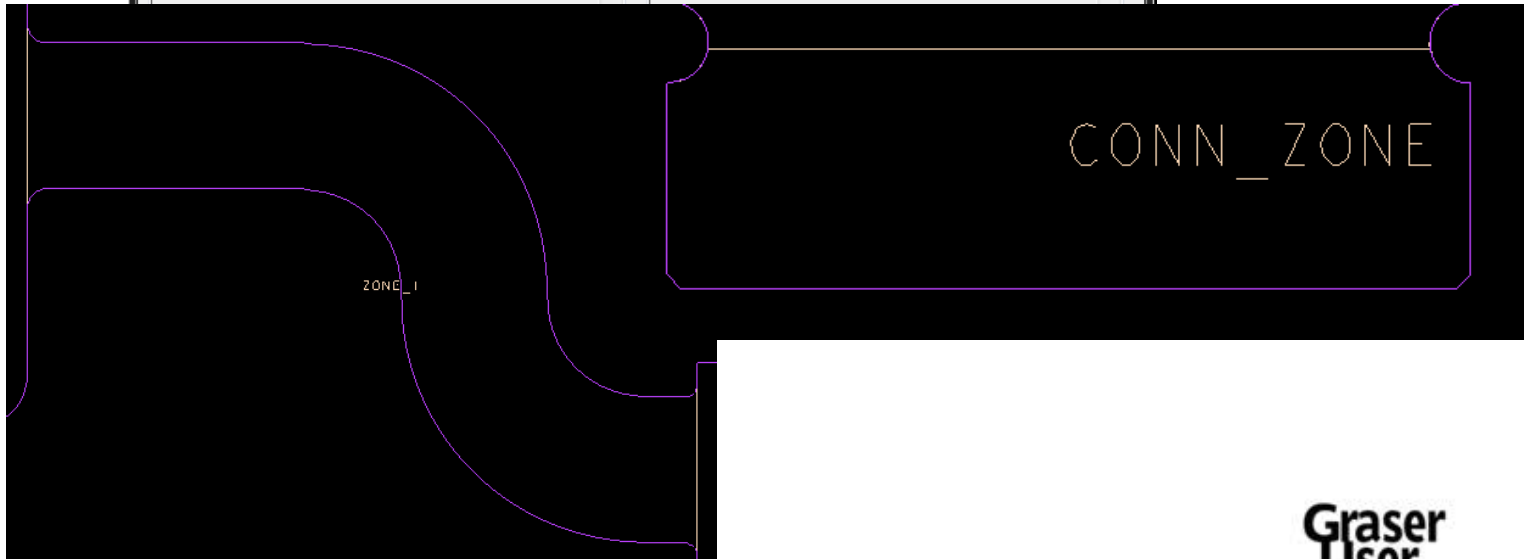
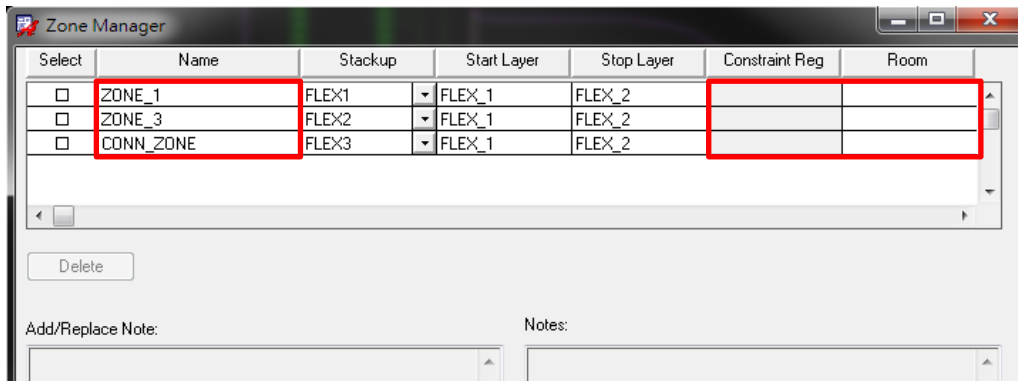
多重疊構之軟硬結合板設計

- Physical Zone Management
 - Create Zone



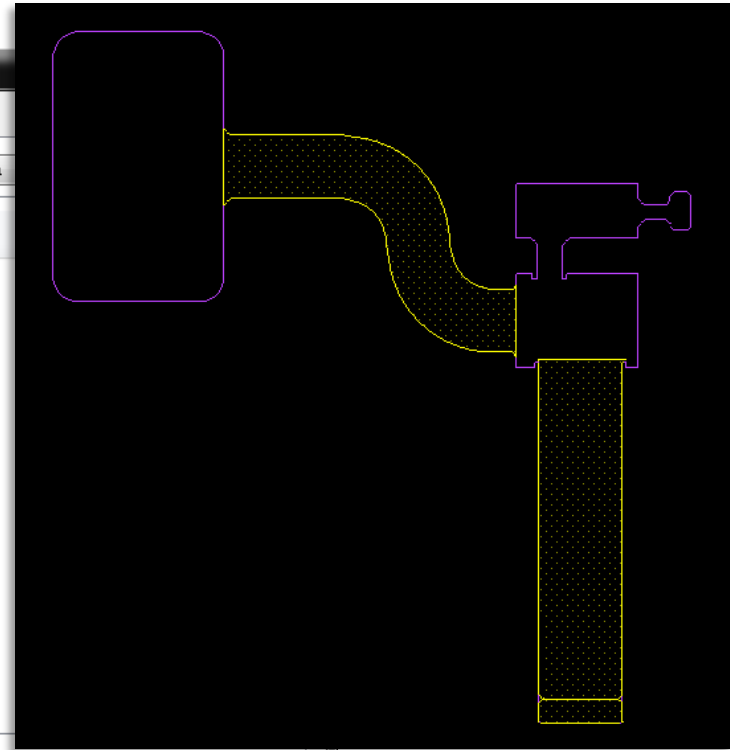
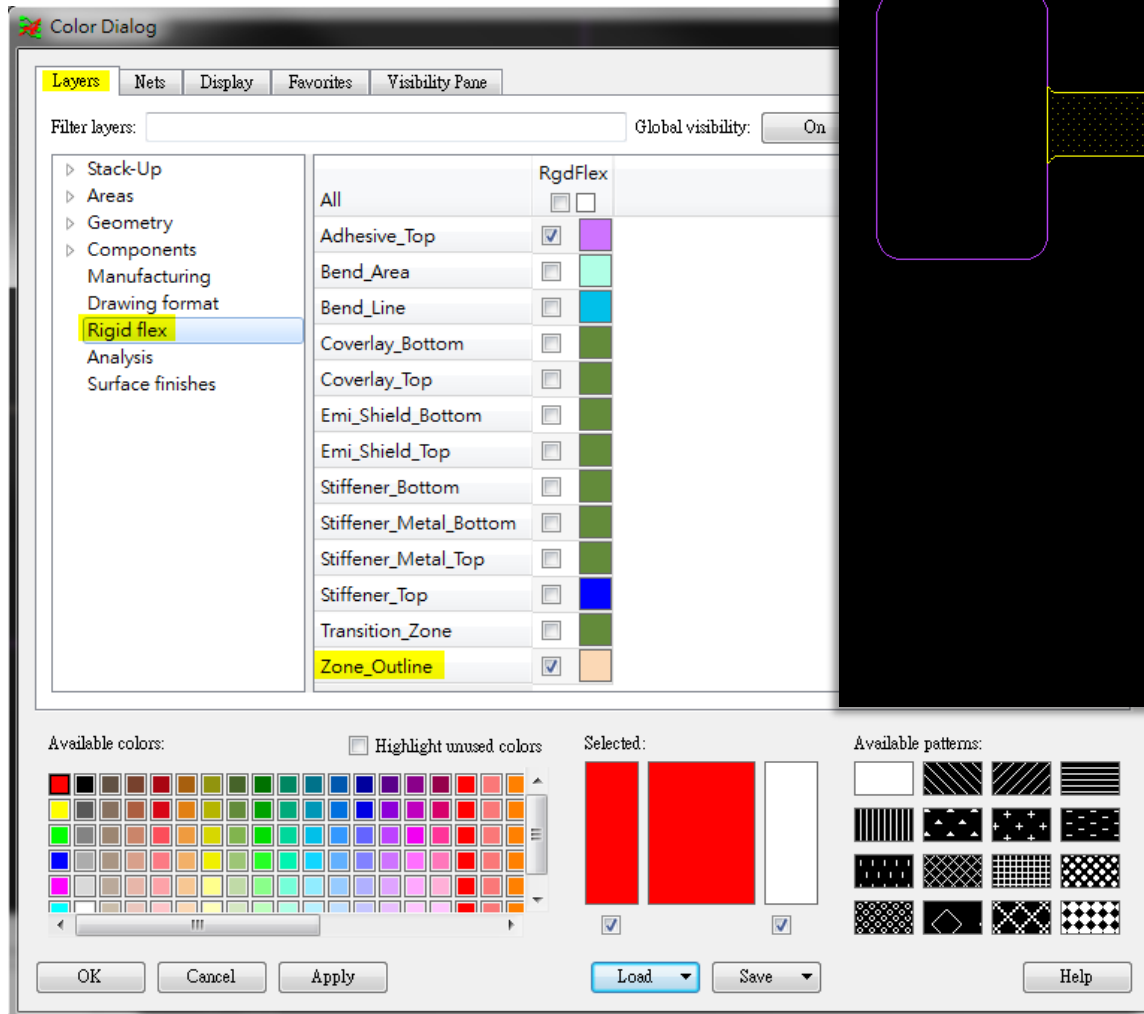
多重疊構之軟硬結合板設計

- Physical Zone Management
 - Management



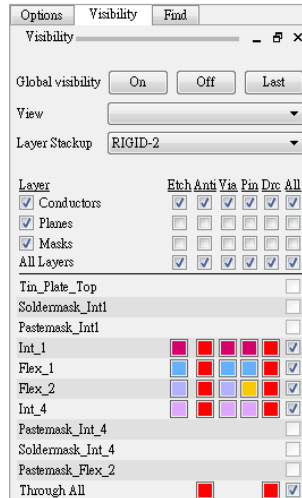
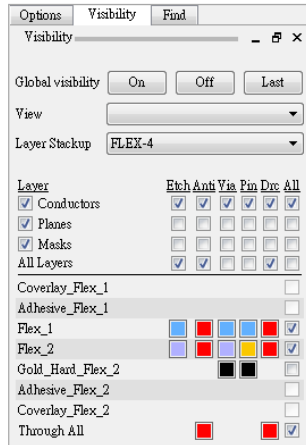
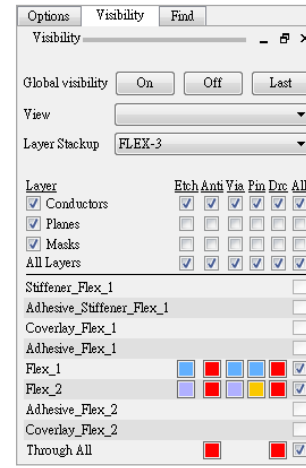
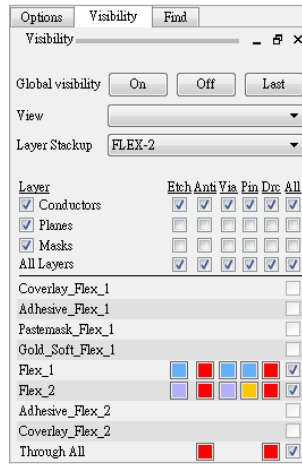
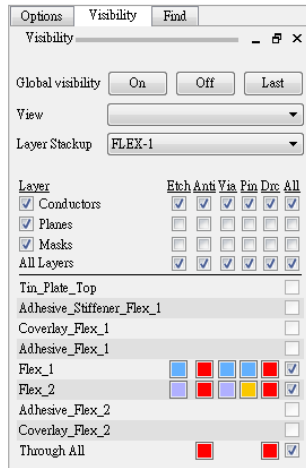
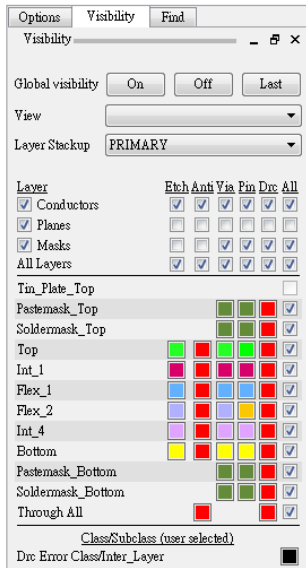
多重疊構之軟硬結合板設計

- Physical Zone Management



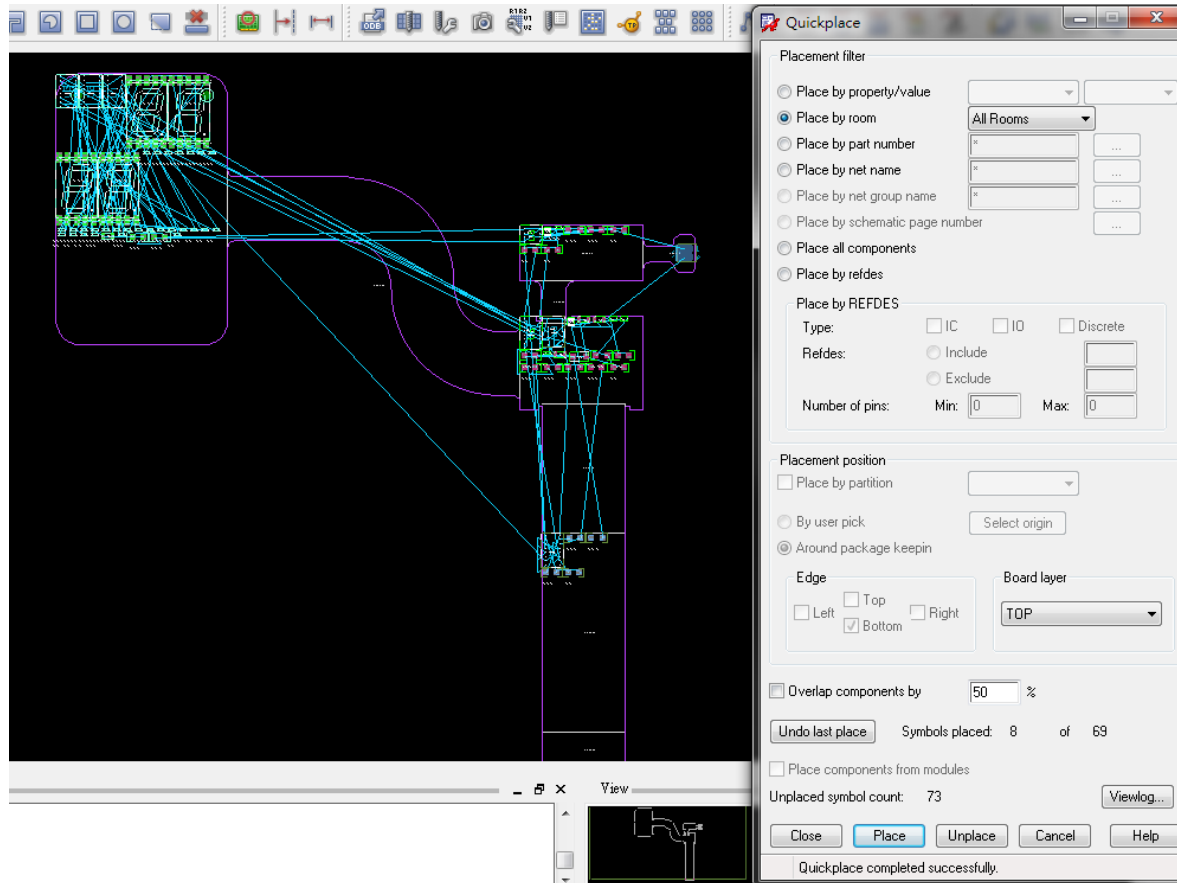
多重疊構之軟硬結合板設計

- Layer Stackup of Visibility



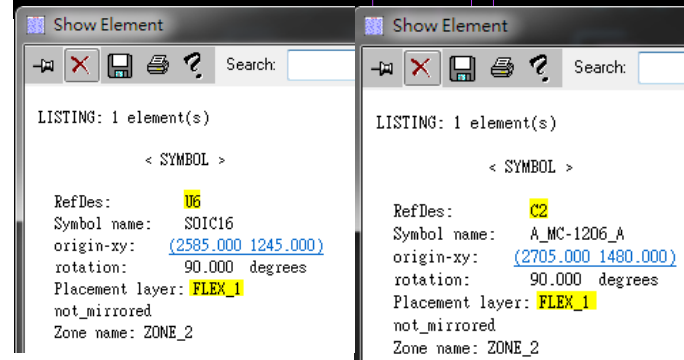
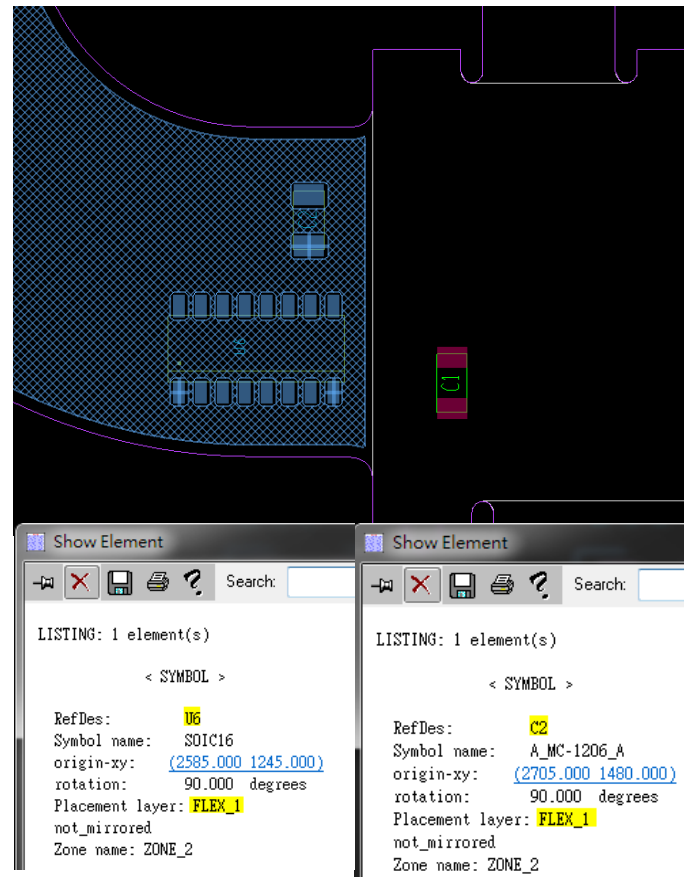
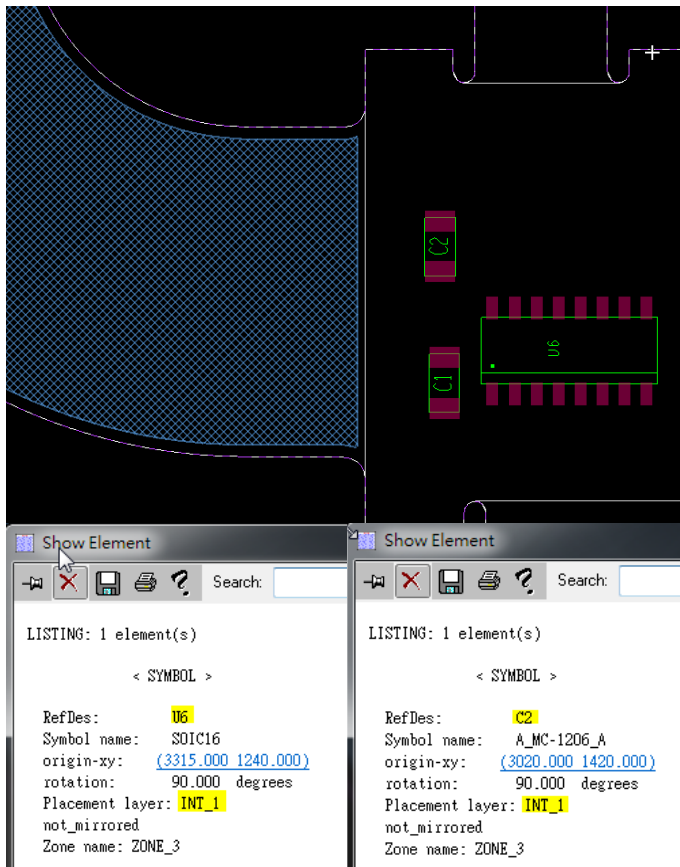
多重疊構之軟硬結合板設計

- Placement
 - Quick Place by Room



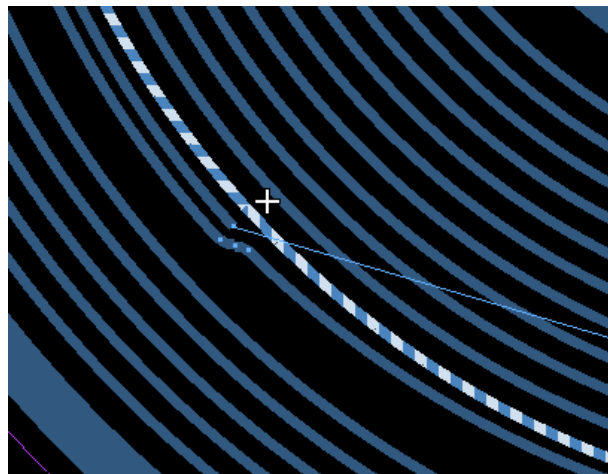
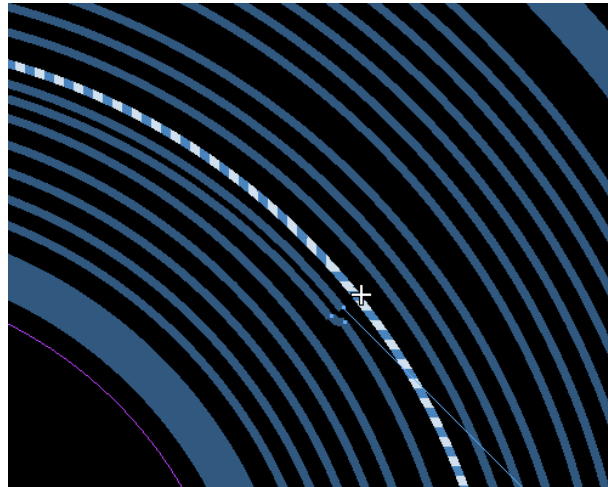
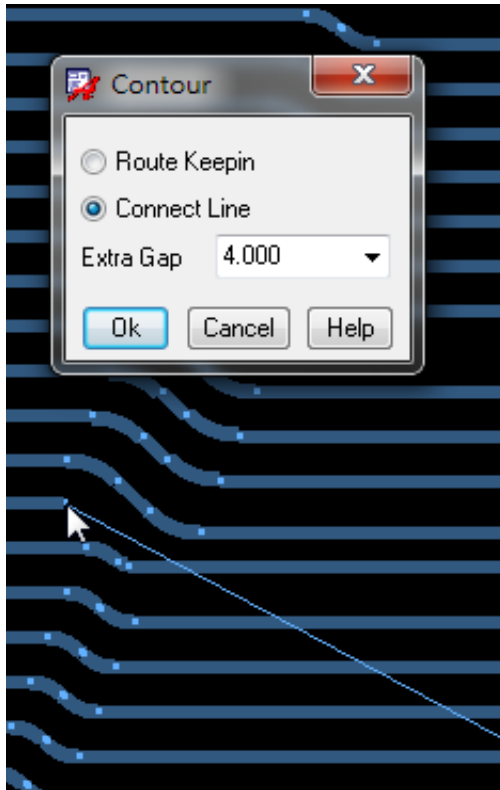
多重疊構之軟硬結合板設計

- Placement
 - Dynamic Zoom Placement



多重疊構之軟硬結合板設計

- Enhanced Contour Routing



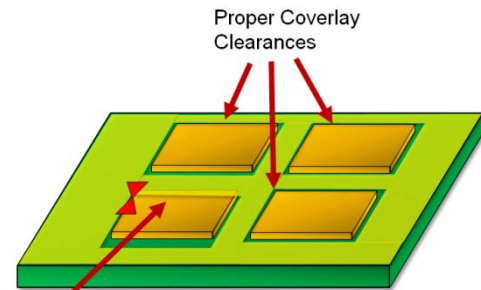
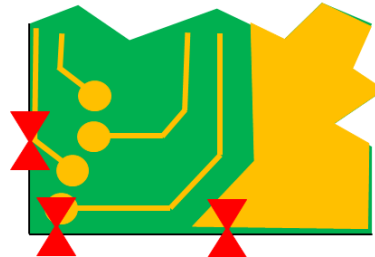
多重疊構之軟硬結合板設計

• Inter Layer Checks (ILC)

DRC Violation:
Via within bend area
Component Pins too close to bend area

Bend Area
Bend Line

Layer 1	Layer 2	Type	Value	Enabled	DRC label	DRC subclass	Description	Delete
Transition_Zone	Tin_Plate_Bottom	Overlap	25.000	✓	O	INTER_LAYER	Prevent Tin Plate Peeling	✗
Adhesive_Stiffener_Flex_1	Stiffener_Flex_1	1 inside 2	45.000	✓	A	INTER_LAYER	Adhesive compression spacing to prevent excessive leakage	✗
Via (and Pin)/FLEX_1	Transition_Zone	Gap	12.000	✓	t	FLEX_1	Via and pin to transition area to prevent cracking and splitting of holes and flex	✗
Etch/Int_1	Design_Outline	1 inside 2	45.000	✓	B	INT_1	Copper to Design Edge Clearance	✗
Bend_Area	Transition_Zone	Overlap	15.000	✓	O	INTER_LAYER	Proper transition area clearance	✗
Coverlay_Flex_2	Gold_Hard_Flex_2	2 inside 1	15.000	✓	G	INTER_LAYER	Ensure Proper Gold Plating	✗
Gold_Soft_Flex_1	Coverlay_Flex_1	1 inside 2	0.000	✓	M	INTER_LAYER	Ensure Proper Gold Plating	✗
Bend_Area	Stiffener_Flex_1	Gap	20.000	✓	S	INTER_LAYER	Prevent Stiffener Peel and Bend interference	✗



DRC Violation
Coverlay on PAD



多重疊構之軟硬結合板設計

- Multiple Stackup Table

MULTIPLE STACKUP TABLE									
Unit : mils									
#	NAME	TYPE	MATERIAL	TOLERANCE	FLEX1	FLEX2	PRIMARY	FLEX3	
		SURFACE	AIR	+0/-0	0.000	0.000	0.000	0.000	
	STIFFENER TOP	MASK	FR-4	+0/-0		2.000			
	COVERLAY TOP	MASK	POLYIMIDE FILM 1MIL	+0/-0	2.000	2.000		2.000	
	ADHESIVE TOP	MASK	ADHESIVE ACRYLIC	+0/-0	0.500	0.500		0.500	
	SOLDERMASK TOP	MASK	SOLDERMASK	+0/-0			2.000		
1	TOP	CONDUCTOR	COPPER	+0/-0			1.200		
		DIELECTRIC	FR-4	+0/-0			8.000		
2	INT 1	CONDUCTOR	COPPER	+0/-0			1.200		
		DIELECTRIC	POLYIMIDE RIGID 5MIL	+0/-0			5.000		
3	FLEX 1	CONDUCTOR	COPPER	+0/-0	1.200	1.200	1.200	1.200	
		DIELECTRIC	POLYIMIDE FILM	+0/-0	3.000	3.000	3.000	3.000	
4	FLEX 2	CONDUCTOR	COPPER	+0/-0	1.200	1.200	1.200	1.200	
		DIELECTRIC	POLYIMIDE RIGID 5MIL	+0/-0			5.000		
5	INT 4	CONDUCTOR	COPPER	+0/-0			1.200		
		DIELECTRIC	FR-4	+0/-0			8.000		
6	BOTTOM	CONDUCTOR	COPPER	+0/-0			1.200		
	SOLDERMASK BOTTOM	MASK	SOLDERMASK	+0/-0	2.000	2.000	2.000	2.000	
	ADHESIVE BOTTOM	MASK	ADHESIVE ACRYLIC	+0/-0	0.500	0.500		0.500	
	COVERLAY BOTTOM	MASK	POLYIMIDE FILM 1MIL	+0/-0	2.000	2.000		2.000	
	GOLD SOFT BOTTOM	MASK	GOLD	+0/-0				1.000	
		SURFACE	AIR	+0/-0	0.000	0.000	0.000	0.000	
TOTAL THICKNESS						12.400	14.400	40.200	13.400
ZONE NAME						ZONE_1	ZONE_3		ZONE_4
						ZONE_2			



Thank You, Next

阻抗匹配與訊號耦合檢查

