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VSDP – DIE Text Import – Creating a Virtuoso Layout from a 3rd party DIE text file

Copyright Statement

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Purpose

IC Package designs have become more complex in recent years due to increased functional density & flexibility necessitating a platform for doing heterogeneous design assembly. A modern scheme for IC packaging includes implementing one or more die (wire bonded or flip-chip) with any number of discrete components (SMD or embedded) onto a single BGA/LGA package substrate. Cross-domain planning & optimization is now mandatory in early stages of the design flow.

Unification of the Virtuoso and Allegro/Sigrity platforms enables top-down design flows for complex IC package designs. This unified environment, now called **VSDP**, has the ability to define and manage system level connectivity as well as bidirectional Die abstract exchange.

VSDP has a functionality to bridge the 3rd Party DIE file to VLS. This can be done by VSDP Import Die Text File function to import a non-Virtuoso (3rd party) Die data text file into Virtuoso Layout. The requirements for the Die text file are Die size, Pin labels/names & X, Y placement coordinates

Audience

This document is intended for Module Designers involved with implementing complex multi-die/multi-technology module designs.

Key Terms

VSDP Virtuoso System Design Platform

VSE   Virtuoso Schematic Editor

SiP   System in Package

Overview

Note: This App Note introduces the basic steps on how to bridge the 3rd Party DIE file to Virtuoso Layout.

Note: For this App Note the assumption is that the user has the basic knowledge of Virtuoso Layout.

Procedure

Step 1: Create a new Virtuoso Layout:

- Make sure to set the following environmental variable to enable the menu option for Import Die Text File: `setenv CDS_CHIPS_IN_BASECELL 1`
- Open Virtuoso >>> virtuoso –sdp
- Create a new library or use an existing library to create a new layout view
    - Tools > Library Manager > File > New > Library
    - Tools > Library Manager > File > New > Cell View > Layout
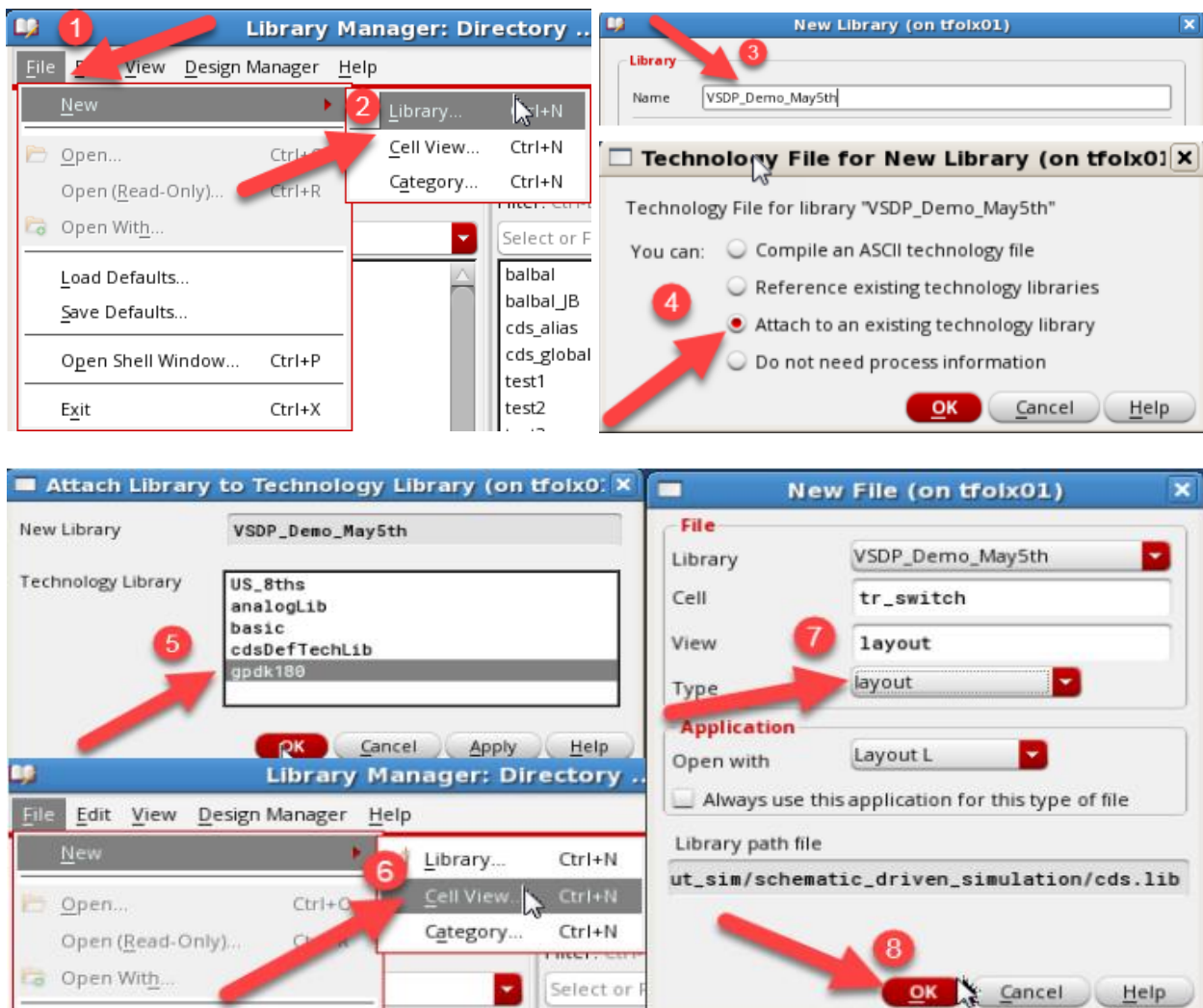
- Once your Virtuoso Layout view is created, enable SDP option under Launch menu (Launch > SDP)
- From the SDP menu, double click on Import Die Text File

- In the Import Die Text File, Browse to the location of your Die Text File
- You also have the option to import csv file, for which you would need to choose Comma (",") as the Delimiter
- You also have the option to change your Pad Width as you wish (unit: Microns)
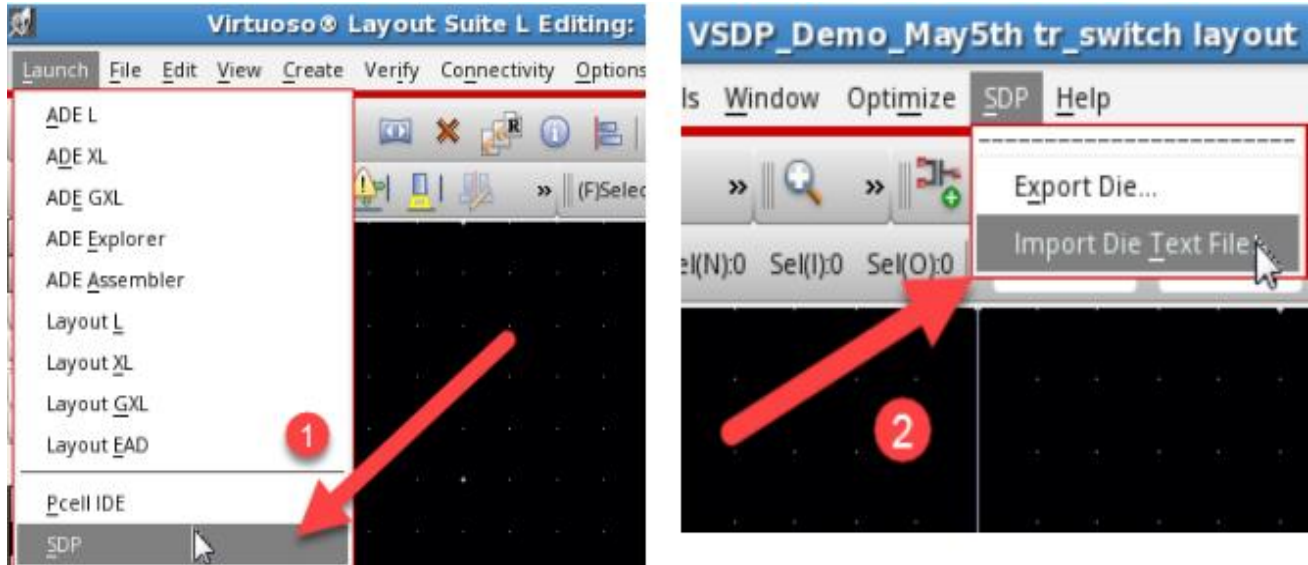

- Once ready, press ok to this form to continue to the layout of the Die
- As you can see in the pictures below, you could correlate the Die text file to the newly created layout view of the Die.

```
DIE_COMPONENT: true
DieType: flipchip
DieOrient: ChipUp
Units: microns
Name: flipchip
Origin: (0.0 0.0)
Extents: ((-50.000 -50.000) (1050.000 1050.000))
Dimension: ((1100.000 1100.000)) Scribewidthx: 50.000000 Scribewidthy: 50.000000 ShrinkFactor: 1.00
Pin Name       X       Y
vss     50.000  950.000
tx_sub  350.000 650.000
modex   350.000 950.000
vss     650.000 950.000
pa_hdd  950.000 950.000
vdd     650.000 650.000
pa_gnd  950.000 650.000
q1      650.000 374.300
dtx     950.000 374.300
vss     950.000 50.000
tx_0    650.000 50.000
tx_1    350.000 50.000
vss     50.000  50.000
vdd     350.000 374.300
rx_1    50.000  374.300
rx_0    50.000  650.000
~
~
```

Die Text File

the minimum requirements
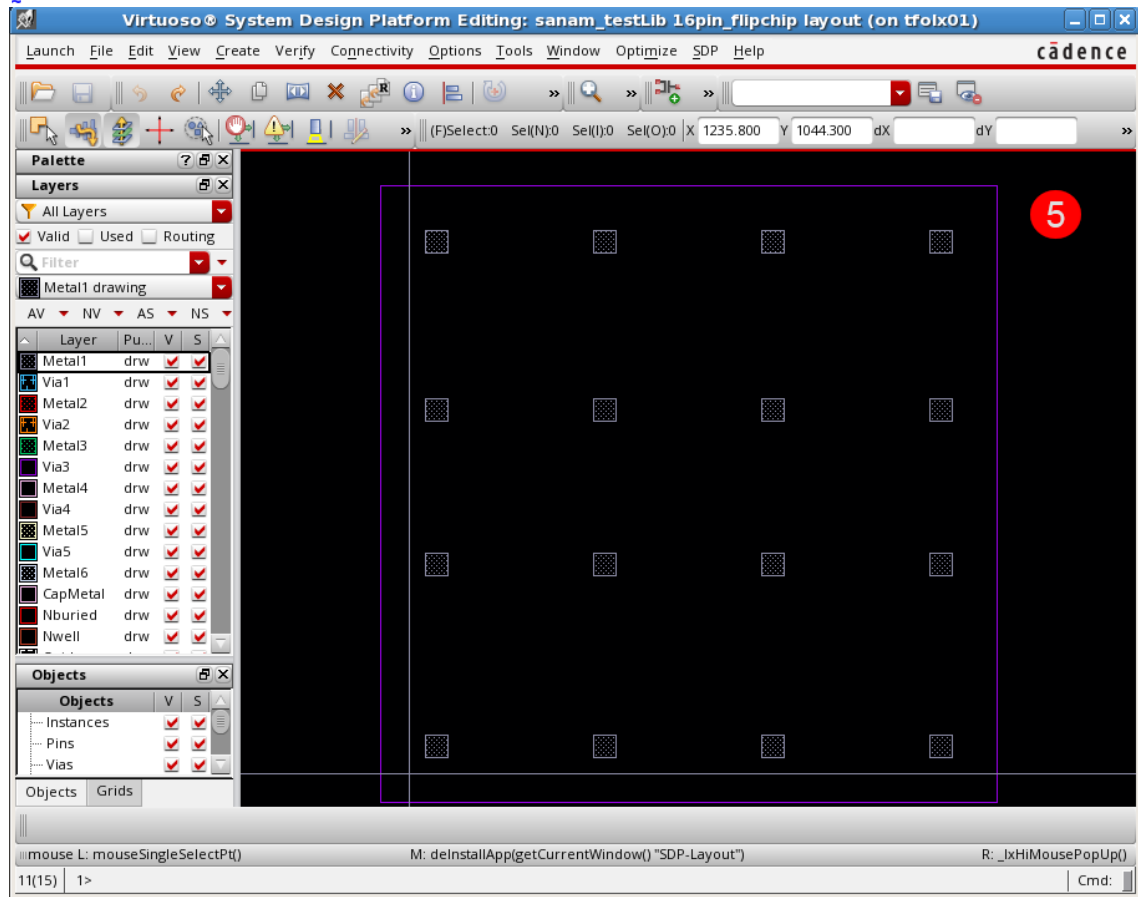
- You could view or modify the certain attributes and properties attached to the pin pads by selecting and pressing "q" to open the Edit Properties windows as it's shown in below pictures
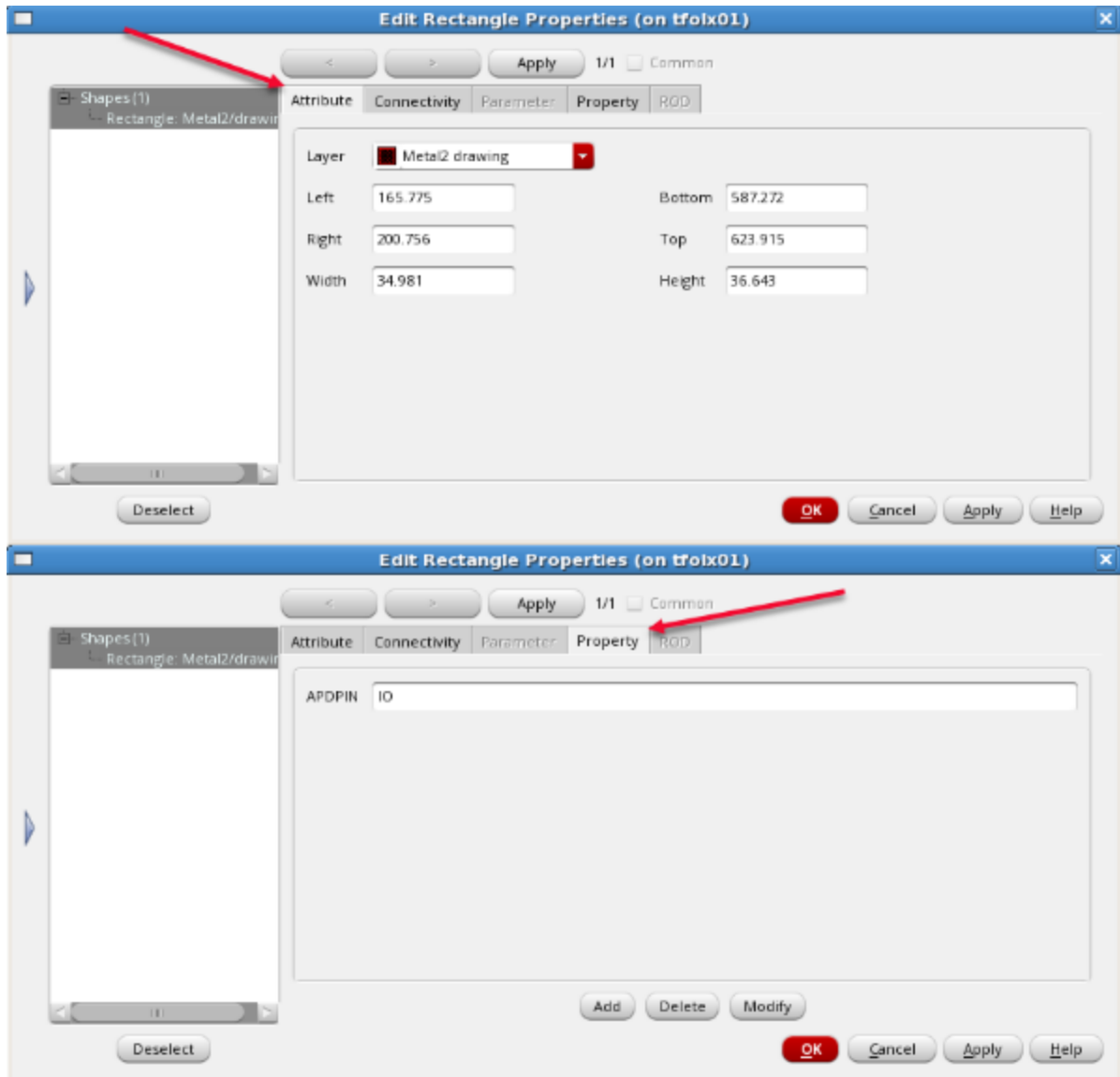
- Once you are done, press OK to exit the form

Summary

In this Application Note, the process of bridging the 3rd Party DIE file to Virtuoso Layout was covered.

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