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Virtuoso Layout Suite EXL Reference

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Introduction to Virtuoso Layout Suite MXL

Virtuoso® Layout Suite MXL (Layout MXL) introduces major developments not only in automation technologies for Custom IC design but also system-level design capabilities to address the “More-than-Moore” design paradigm.

The Layout MXL cockpit offers full access to all the Layout EXL functionality in addition to supporting integrated automated placement and routing solutions. Layout MXL offers a unified interface to cater to all the design styles across both mature and advanced process nodes, including the latest GAAFETs. The Layout MXL cockpit is also the default cockpit for integrated circuit designs for large system-level designs, due to its heterogeneous design capabilities, such as co-design and multi-fabric electromagnetic and thermal analysis.

The Layout MXL cockpit is the base cockpit for assisted and automated layout migration that captures designer intentions such as placement and routing topologies from previous generation layouts to recreate the layout in next generation process nodes.

Related Topics

Launching Virtuoso Layout Suite MXL

Virtuoso Layout Suite MXL Features

Launching Virtuoso Layout Suite MXL

To manually launch Layout MXL, do one of the following:

- From a Schematics XL or Layout XL window, choose *Launch – Layout MXL*.

- Use the Open File form from a Schematics XL or Layout XL window and choose *Layout MXL* from the *Open with* drop-down list.

Opening a design in Layout MXL automatically checks out a `Virtuoso_Layout_Suite_MXL` license, which remains checked out until either:

- All the layout windows in the Virtuoso session are closed. (The license remains checked out regardless of whether any of the open layout windows are using MXL features or not.)
- The Virtuoso session itself is ended.

Related Topics

Virtuoso Layout Suite MXL Features

Virtuoso Layout Suite MXL Features

The key features supported by Layout MXL are listed below:

- **Advanced Node Standard Cell Placement and Routing**

  Virtuoso Layout Suite MXL provides fast custom digital layout creation using the GigaPlace™ Engine and the NanoRoute™ Advanced Digital Router engine from the Innovus™ Implementation System. The GigaPlace and NanoRoute engines help overcome the deterioration in result quality from automated standard cell placement and routing tools due to complex design rule challenges on advanced process nodes. In addition, the availability of the Auto P&R assistant for standard cell placement and the Routing assistant for standard cell routing in the Layout MXL cockpit, makes the automation engines natively available in Virtuoso.

  See Virtuoso Standard Cell Placement and Routing

- **Automatic Routing Support using Routing Assistant**

  The Routing Assistant in Virtuoso Layout Suite MXL is a unified, fully integrated interface that supports auto-routing for various design styles – device, standard cell, and chip assembly. The assistant provides a common spreadsheet-style Routing Constraint Manager that simplifies management of routing constraints for thousands of nets, using in-built filters and custom view support. The Routing Results Browser further simplifies the routing management by providing the results in an easy-to-read and customize table format that supports cross-selection, filtering, and sorting.

  See Routing Assistant

- **Transparent Editing of Modgens**

Virtuoso Layout Suite MXL allows direct selection and editing of instances inside a Modgen without requiring an Edit-In-Place. This avoids the hassle of switching back and forth between Modgen editor and layout to edit various modgens in the layout. In Transparent Editing mode, all the Modgen editing capabilities are supported for the top-level canvas object in context.

See Modgen Transparent Editing Mode

- **Cross Section Viewer**

  You can view cross sections of physical layers in a layout by using the cross section viewer. The viewer displays the different layers, from top to bottom, present in a cross section, enabling you to view each layer clearly and to help identify any missing or wrongly placed layers and to debug connection issues across layers.

  See Cross Section Viewer

- **Layout Migration**

  Layout migration in Virtuoso Layout Suite MXL enables you to recreate the layout in your target process node, while retaining the critical intents from the source layout. The migration process requires capturing the placement and routing information from the source layout in templates and applying the reuse information from these templates to generate the target layout.

- **Heterogeneous Integration**

  Virtuoso Layout Suite MXL allows integration of multi-fabric chiplets to implement circuits that are more cost effective and faster to market. Not only does Layout MXL support multi-fabric co-analysis of electrical, electromagnetic, and photonic signals but it also supports system-level integration and verification of multi-fabric circuits, including power and thermal analysis.

  See Flows in Virtuoso RF Solution

Related Topics

Launching Virtuoso Layout Suite MXL