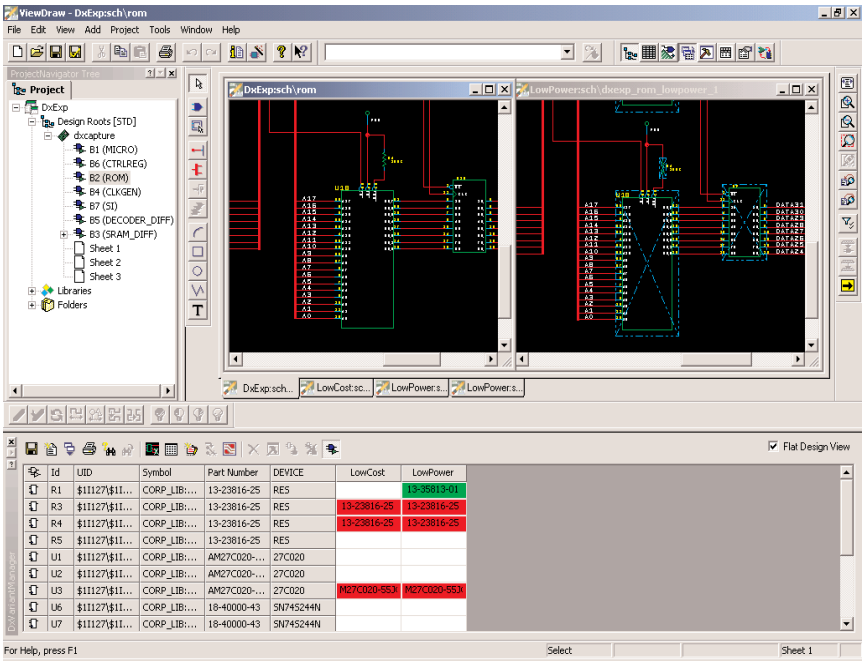
DxVariantManager



DxVariantManager enables rapid product differentiation and custom configurations through board-level design reuse.

Overview

Many electronic products today are structured such that they can be manufactured from a single base design, with varying characteristics and feature sets based on customer and target market configurations. This practice enables rapid product differentiation and custom configurations.

Actually creating and managing these types of electronic products during the board-design phase is typically a manual and error prone process, usually involving the replication of the entire design database for each needed design variant. When a change is made, that change must be replicated by hand across the entire set of databases, with no guarantee of correctness or completeness. The component substitution methods are also manual and often result in the substitution of the wrong part.

Mentor Graphics® DxVariantManager™ is designed to solve these issues by implementing a design-variant strategy that uses a single design database and qualified component substitution.

Highlights

- Enables board-level design reuse by supporting variations of a base design
- Creates design variants by substituting form-fit-function compatible components and/or uninstalling components
- Implements component substitution through DxDataBook to ensure compatibility of substituted part
- Supports hierarchical design and can perform substitutions and de-installs on hierarchical blocks
- Imports variant design blocks into new top-level designs with all variant information preserved
- Generates bills of material for variant designs in multiple report outputs
- Displays difference report between any two variants
- Generates variant schematic for documentation purposes

Single Design Database

Design database and change-control management is simplified by using a single design database for the entire set of design variants. The base design, which is the superset of all the variants, encapsulates all the data for the individual variants. This has several advantages. When a change is made to the base design, all the variants can be updated automatically, eliminating the time-consuming and error-prone task of manually replicating changes in multiple design databases.

Another advantage is the ability to report and compare the variants to each other and to the base design. All documentation, including bills of material (BOMs), reports, and schematics, are derived from a single, controlled source.

Qualified Component Substitution

One of the most significant problems in the variant-creation process revolves around component substitution. This largely manual process often leads to the incorrect component being substituted. Common problems are wrong footprints, incorrect pin-outs, etc. These problems are exacerbated by having non-centralized, inconsistent libraries, often with wrong, outdated, or incomplete information. But even a good, centralized library does not ensure proper substitution, as the process is still manual.

DxVariantManager is integrated with DxDataBook™ to enable proper, qualified component substitution. To enable the substitution, designers define and identify the attributes in the corporate library that cannot vary between components. Because they are kept in the DxDataBook configuration, these attributes can be different for each library classification (i.e., capacitors, resistors, ICs, etc.) and, different projects can use different definitions. During the component substitution procedure, DxVariantManager invokes the leading-edge search and match capabilities in DxDataBook to provide designers with a list of the specific components that match their criteria.

Typical Product Usage

The first step is to configure DxDataBook to enable the qualified-component substitution so it can directly perform the substitution.

DxVariantManager is implemented as an add-in to DxDesigner™. When users open DxVariantManager on the base design, it populates its intuitive, spreadsheet interface with all the components in the design. From this, users can then create any number of variants in which you uninstall (unstuff) components and/or substitute different components.

"Uninstall" and "substitute" are a simple mouse click away and can also be done directly in the schematic. If designers are substituting, DxVariantManager passes component information directly to DxDataBook.

Often, variants are very similar to variants that have already been defined, so DxVariantManager makes it easy to clone variants to create new variants. Entire hierarchical blocks can also be uninstalled or substituted. This makes it easy to modify the behavior or performance of a variant by applying the changes to an entire section of circuitry, not just a single component at a time. A set of variants can even be defined for a hierarchical block. When that block is used in a top-level design, the variants are automatically available as part of the top-level variant definition. This simplifies the reuse of variants, since the variants defined for the lower level block do not have to be reentered.

DxVariantManager supports cross probing with DxDesigner. Just click on a component in DxVariantManager, and it is highlighted in DxDesigner. Once all the variants have been defined, users can then compare the variants in a table and create the variant BOM output. Several report styles (including HTML, Excel, and plain text) are supported. Designers can also create variant, heirarchical schematics for documentation. The HTML output enables users to rapidly share all the design variant information in a web browser.

For more information, visit our website at www.mentor.com/

Corporate Headquarters
Mentor Graphics Corporation
8005 SW Boeckman Road
Wilsonville, OR 97070-7777
Phone: 503.685.7000
Fax: 503.685.1204

Sales and Product Information
Phone: 800.547.3000

Silicon Valley
Mentor Graphics Corporation
1001 Ridder Park Drive
San Jose, California 95131 USA
Phone: 408.436.1500
Fax: 408.436.1501

North American Support Center
Phone: 800.547.4303

Europe
Mentor Graphics
Deutschland GmbH
Arnulfstrasse 201
80634 Munich
Germany
Phone: +49.89.57096.0
Fax: +49.89.57096.400

Pacific Rim
Mentor Graphics (Taiwan)
Room 1603, 16F
International Trade Building
No. 333, Section 1, Keelung Road
Taipei, Taiwan, ROC
Phone: 886.2.87252000
Fax: 886.2.27576027

Japan
Mentor Graphics Japan Co., Ltd.
Gotenyama Hills
7-35, Kita-Shinagawa 4-chome
Shinagawa-Ku, Tokyo 140
Japan
Phone: 81.3.5488.3033
Fax: 81.3.5488.3021

Printed on Recycled Paper

10-05-JC 1021120