Active Mockup

Integrated environment for layout, design, & validation of products

- High performance & capacity
- Sophisticated context-setting tools
- Comprehensive set of visualization & validation capabilities

Brings large scale mockup tools into design environment

Benefits

Parts and subassemblies designed and validated up front against total product

Mockup becomes active part of design process
Active Mockup in NX 5

World class mockup technology in a design environment

JT technology inside NX
- New levels of **performance & scalability**
- Enhanced **assembly analysis**

**Benefits**
Designer has everything they need in one place

© 2008. Siemens Product Lifecycle Management Software Inc. All rights reserved
Siemens PLM Software
Typical Design Workflow – Key NX 5 Improvements

Enhanced Component Placement
- Add Component, Move Component, Assembly Constraints

Enhanced Designer-Level Validation
- Sectioning
- Dynamic measure
- Motion envelope
- Path planning

Enhanced Performance & Capacity
- JT inside NX
Typical Design Workflow – Key NX 6 Improvements

Streamlined Design-in-Context
- On-the-fly WAVE linking
- Relations Browser
- Extended facet selection

Sectioning enhancements
- Saved sections
- Grid display
- 2D window

Start → Load context → Validate → Make changes → Modify context → Finish

Multi-CAD Improvements
- Associative inter-part references
- Bookmark support
Design in Context

Direct selection of geometry in other components during feature creation

- Optional associativity (creates WAVE link)

Available in key modeling commands (e.g. extrude, trim, subtract)

Benefit

Streamlines modeling of interacting parts and building of inter-part relations
Design in Context

Associativity Controls

Allow Associative Interpart Modeling

- Yes
- Yes, but Not within Commands
- No

Customer defaults

Selection controls during feature creation

Benefit

Guards against accidental creation of inter-part links
Relations Browser

Graphical network representation of inter-part dependencies
  - WAVE
  - Inter-part expressions

Uses Teamcenter to find relations to unloaded parts

Shows product interfaces

Reports Circularities

Benefit

Easier investigation of inter-part relationships & impact analysis
The need for Multi-CAD

Different design teams
Different locations
Different CAD systems ...

ONE product

from supplier
from partner
carry-over
When is Multi-CAD support important?

Collaboration

Product design & manufacture has become increasingly collaborative & distributed

- Partnerships
- Suppliers
- Mergers & acquisitions

Different CAD Systems

Need to incorporate subassemblies and parts from other CAD systems into NX design environment
Solving Multi-CAD with NX, Teamcenter, and JT

- Teamcenter represents structure
- JT represents Multi-CAD geometry

Diagram:

- Teamcenter CAD integrations
- Classic multi-site
- Global multi-site
- Teamcenter Import

Structure & JT
Solving Multi-CAD with NX, Teamcenter, and JT

What Does NX Read?
Solving Multi-CAD with NX, Teamcenter, and JT

What Does NX Read?

- **NX Data**: Reads NX datasets as normal
- **Multi-CAD Data**: Builds structure on load, Reads JT Geometry
How it works in NX 5

Loading a Multi-CAD assembly

NX creates assembly structure during load (structure synch)
Loads geometry from JT file
Creates & populates MODEL & FACET ref set
Sets reference set according to load options
Multi-CAD Enhancements in NX 6

Consistency with NX Loading

Loading of PMI & Reference Geometry governed by Partial Loading load option

- Controlled by customer defaults in NX 5

<table>
<thead>
<tr>
<th>Setting</th>
<th>What’s Loaded from JT File</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Partial Loading ON</strong></td>
<td></td>
</tr>
<tr>
<td>MODEL ref set</td>
<td>B-rep</td>
</tr>
<tr>
<td>LIGHTWEIGHT ref set</td>
<td>Faceted representation</td>
</tr>
<tr>
<td>Entire Part</td>
<td>Everything</td>
</tr>
<tr>
<td><strong>Partial Loading OFF</strong></td>
<td></td>
</tr>
<tr>
<td>Any reference set</td>
<td>Everything</td>
</tr>
</tbody>
</table>
Multi-CAD Enhancements in NX 6

New Assembly Navigator column

Indicates with components are loaded from JT

JT component – **some** data loaded

JT component – **all** data loaded
Multi-CAD Enhancements in NX 6

Inter-part associativity

Associative references to Multi-CAD geometry (e.g. constraints, WAVE, measurements, annotation)

Limited in NX 6 (e.g. JT file must not change, must be JT v9 with XT B-rep)
Saving and Restoring Design Context

Bookmark Enhancements

Supports Multi-CAD data

Ability to restore more session information

- partially/fully loaded state of components
- all parts in session vs displayed part
- collapse/expand state of Assembly Navigator

Benefit

More accurate and complete reconstruction of session state
Large Model Visualization

Automatic Performance Setting

Sets graphical level of detail depending on hardware and model complexity

Adapts when more or less is displayed

Benefits

Optimal graphics performance without user tuning
Selection of Faceted Faces, Edges, Vertices

Increased Availability in NX 6

Facet topology selection available in more places

Examples:

- Move Component (completed coverage)
- Assembly Sequencing (motion definition)
- Project distance measurement (direction vector)

Selection uses standard UI for point, vector, & plane definition
- consistent with solid selection

Projected Distance Measurement
View Sectioning Improvements

Saved sections

Multiple sections can be saved in a part

Easy switching between sections using Navigator
View Sectioning Improvements

Section Curve Display

Ability to display curves for multiple sections simultaneously
View Sectioning Improvements

Benefit

Easier visualization and measurement of section
Copy Option in Move Component

Ability to make copies of components in Move Component

- Place single copy in new position
- Create pattern of copies

Benefit

Fast creation and positioning of multiple instances
Copy Option in Move Component
Copy Option in Move Component

Intermediate copies - linear

Intermediate copies - angular
Replace Component

Consolidation of Substitute Component and Open As into one command

Supports functionality from both NX 5 commands
Flexible Component Improvements

Flexible component can include more than one body

Different bodies in different reference sets (detailed and simplified)

Cables and connectors in same component
Flexible Components Improvements

Flexed components can be updated when base definition changes.
Ability to create movies of NX sessions

- Assembly sequence export
- Screen capture of NX session

Supports various video compression formats

- Codec must be already installed on computer