MSC.Patran™
CAE Solid Modeling

Powerful solid modeling functionality within MSC.Patran

OVERVIEW

The CAE Solid Modeling provides added solid creation and editing tools inside the MSC.Patran 2003 modeling environment. The analysts now have powerful solid modeling functionality to enable rapid conceptual model creation and robust editing of solid models. These enhanced capabilities also greatly improve the analysts' flexibility and effectiveness in dealing with "dirty" and otherwise troublesome imported geometry.

Improved model creation and editing time by 30X

NEW FUNCTIONALITY INCLUDES:

Solid editing operation

- Boolean operations - add, subtract, intersect
- Edge blend - constant, radius, chamfer
- Imprint - solid on solid
- Shell - create thin wall solids

Solid creation operations

- Primitive creation
  - Block, cylinder, cone, sphere, torus
  - Optional on-the-fly Boolean operation

- Extrude and revolve surfaces to solids
- Transformations, including group transform

PRODUCT LINE

MSC.Patran™

CAPABILITIES

- Solid primitive creation
  - Block, cylinder, cone, sphere, torus
- B-Rep solid creation
  - Extruded solid
  - Revolved solid
- Solid Editing
  - Boolean, edge blend, imprint, shell, break
- Mid-plane surface extraction
- Refit to parasolid
- Automatic/Interactive feature recognition
  - Parasolid based
  - Recognizable features
    - Hole
    - Blend
    - Chamfer
- Added functions
  - Edit
  - Delete
  - Show
- Support transform operations

BENEFITS

- Drastically reduce analysis modeling time
- Reduce development cost
- Increase productivity
- Build conceptual solid models directly within the MSC.Patran environment
Mid-surface creation

- Idealization for thin walled bodies
- Automatic
- Manual with trimming tools
  - Perform additional editing
  - Trimming of overlapped edges
- Significant increase in productivity
- Enable accurate and efficient analyses

Automatic and interactive feature recognition

The new automatic feature recognition/interactive feature recognition will greatly enhance the robustness and flexibility of the CAE Solid Modeler.

- Parasolid based
- Recognizable features
  - Hole
  - Blend
  - Chamfer
- Edit/Delete/Show features

Finite element and geometry integration

- Auto update of FEM and CAE data after solid editing operations
- On-the-fly conversion of MSC.Patran native geometry

- Interactive recognition of 3 features
  - Modify feature parameter
    - Reduce diameter from 4 to 2
- Original geometry is modified automatically
  - FEA and CAE data are updated accordingly
  - No additional editing or re-meshing of FEM is needed