

Xpedition 3D Multi-board

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Xpedition Layout

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System Design

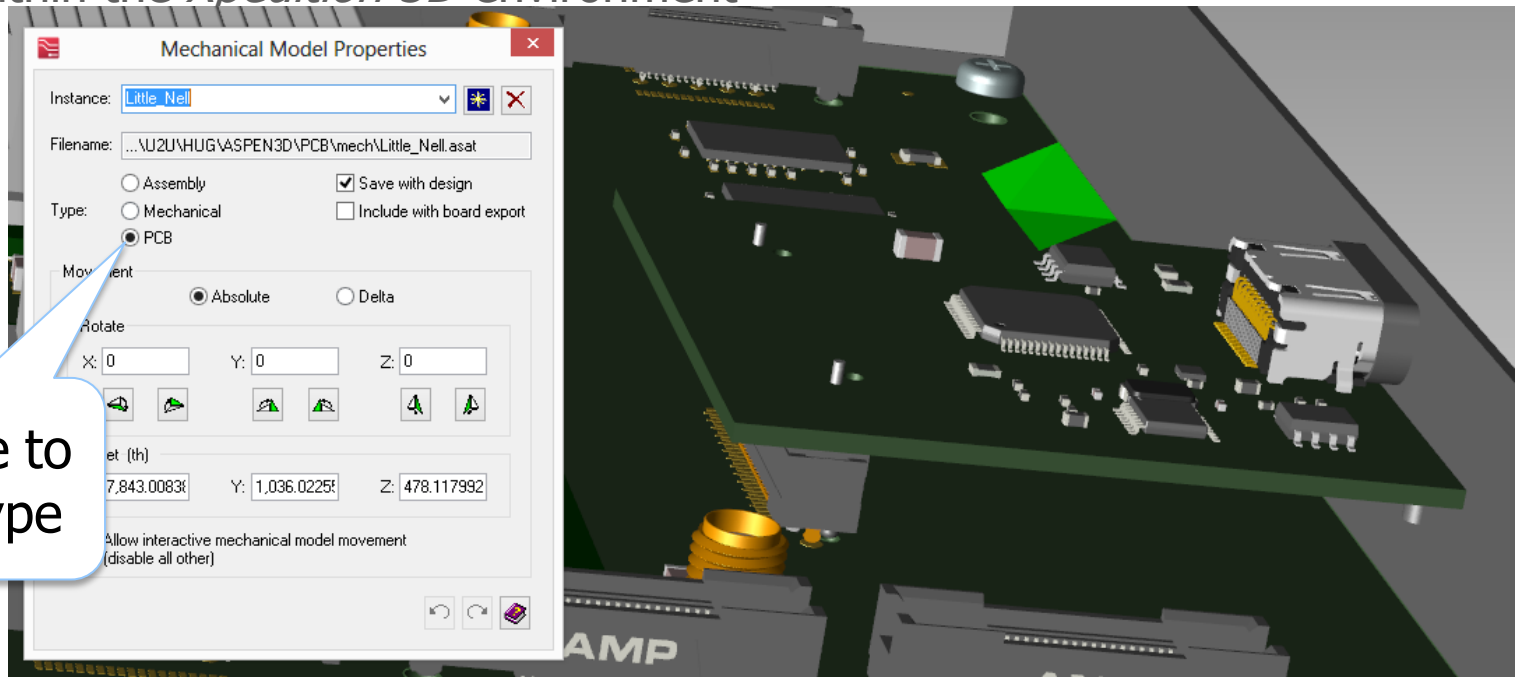
- *Xpediton 3D* allows a designer to model physical multi-board systems facilitating collaboration within the enterprise on complex physical systems. PCB designers can import solid models of other PCB designs allowing them to make placement adjustments to meet the mechanical constraints of these designs or collaborate with the other PCB designers on changes that need to be made within the referenced PCB designs.
- In the future, as this technology is integrated into the system design sub-flow, the ability to collaborate and manage complex systems from concept, through electrical into physical will greatly improve the quality of the system design.

PCB Supported Model Formats

- PCB Designers have the ability to import other Xpedition Layout boards as solid models into their design
 - When *Xpedition 3D* is saved, a PCB Solid Model file is automatically created "...\\Layout\\3D\\<**PCB_design_filename**>.xtda" in it's native format
 - Any *Xpedition 3D* PCB design can also be exported as a STEP or SAT Solid Model using the **3D > Export** command
 - Importing a PCB Solid Model can be done by using the **3D > Import Mechanical Model** command and selecting either a previously generated *.xtda file, STEP, *.iges or SAT Solid Model file

Defining a PCB Model Type

- Once a PCB Solid Model has been imported into the design, the **Mechanical Model Properties** dialog should be used to modify the model to a **PCB Model Type**
 - This designation allows users to manage the *PCB* solid model uniquely within the *Xpedition 3D* environment



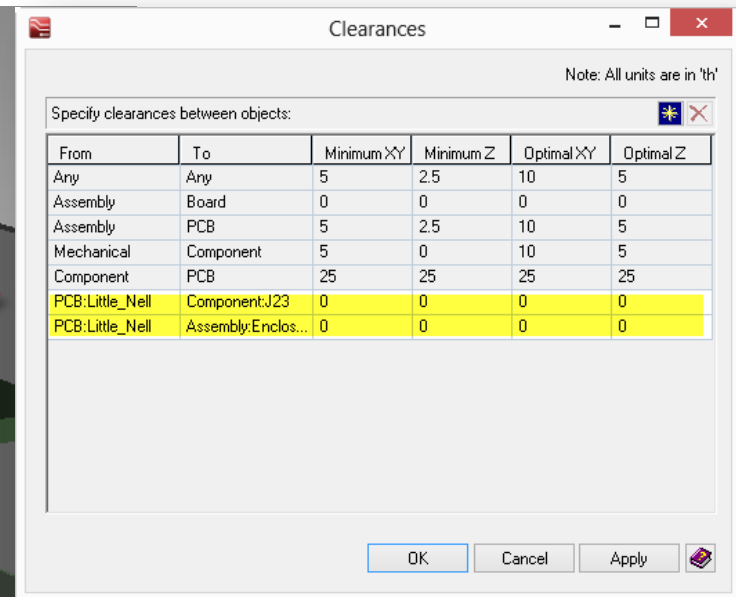
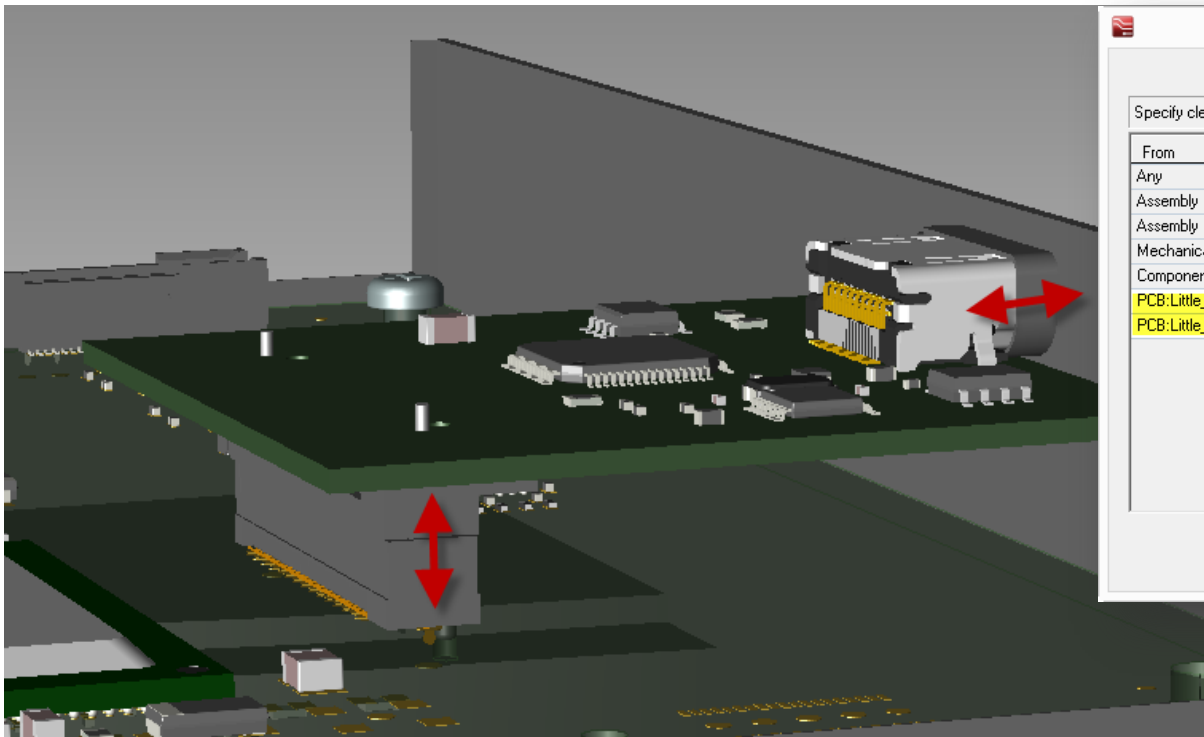
PCB Model Specific Constraints

- By changing the Solid Model type to *PCB*, users can define constraints within the 3D *Constraint Manager* that are only specific between a PCB Assembly and Components and/or other Mechanical Assemblies
 - Provides the ability to define special clearances between objects of the edited design and imported PCB Solid Model of another board

3D Constraints						✕
Constraints	↕↑	Minimum XY (th) ▾	Minimum Z (th) ▾	Optimal XY (th) ▾	Optimal Z (th) ▾	
Any to Any		5	2.5	10	5	
Active Board to Assembly		0	0	0	0	
Component to Mechanical		5	0	10	5	
Component to PCB Assembly		25	25	25	25	
▶ PCB Assembly to Assembly		5	2.5	10	5	
📎 Add Constraint...						

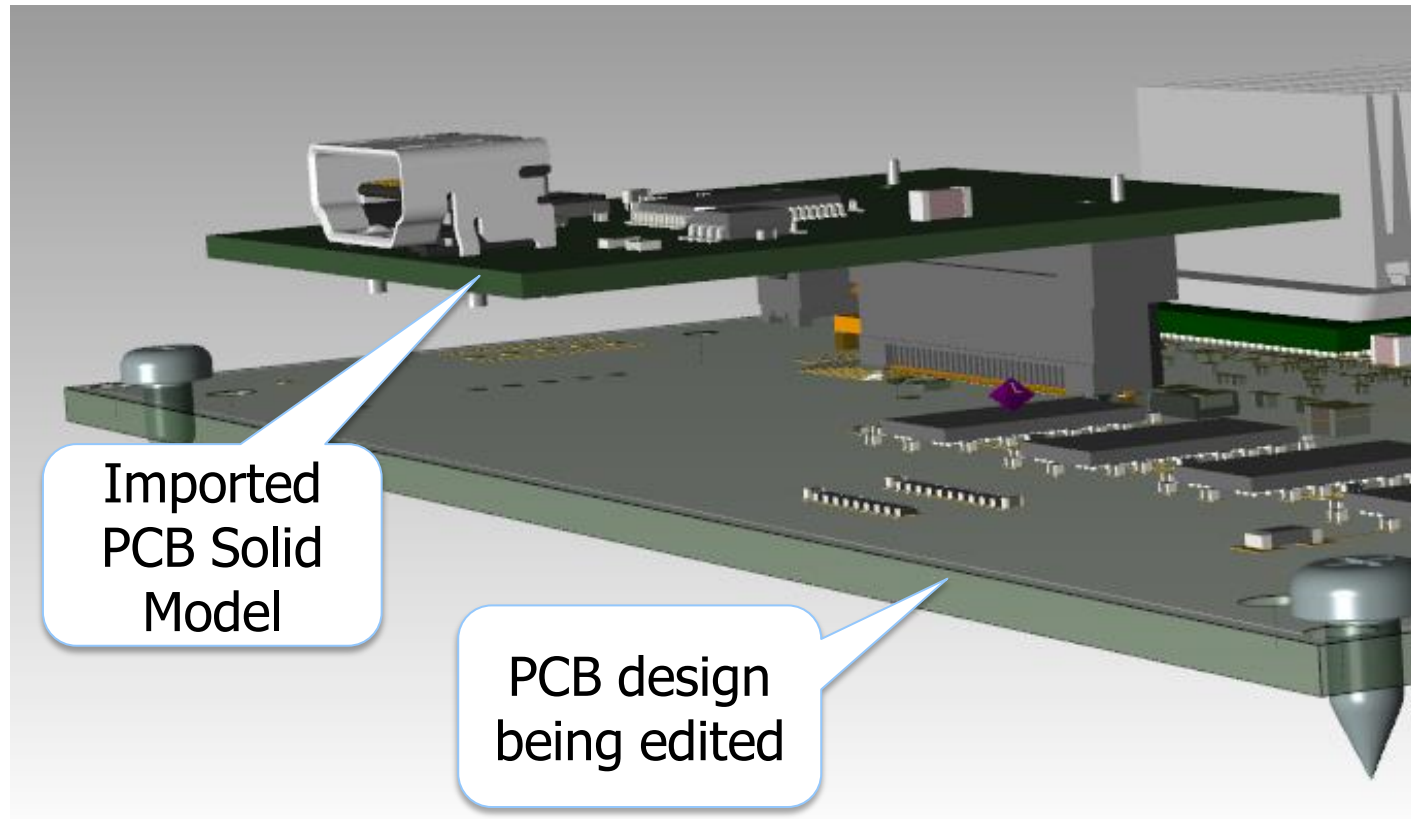
Board-to-Board Constraint Overrides

- Per instance clearance overrides between the imported PCB Solid Model and the connector/assembly within the edited design can be defined



Management of PCB Models

- Features of an imported PCB Solid Model can not be modified in the PCB design environment being edited

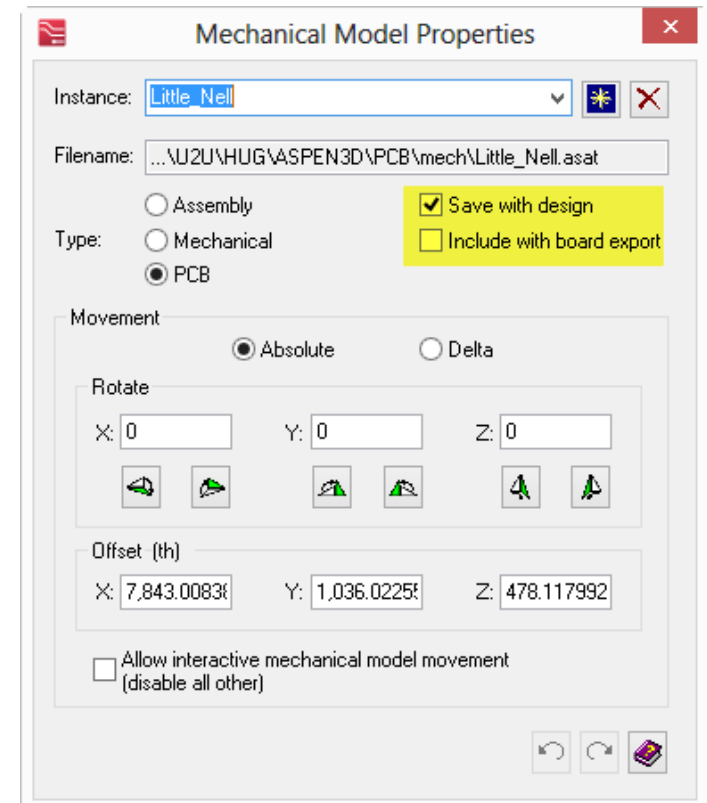


Saving PCB Model Configurations

- The *Mechanical Model Properties* dialog provides users the following save options:

- ☒ **Save with design:** this option allows the model to be reloaded automatically into the design and location every time the *3D View* is opened
- ☒ **Include with board export:** this option controls whether the imported PCB model is a persistent part of the design when a 3D Model (SAT or SATA) export is performed

- The **3D > Import / Export Assembly File** commands can be used to save all imported mechanical solid model locations allowing these to be loaded on demand for different mechanical variations





www.mentor.com/pcb