# Integrated ECAD, Modeling, and CAM in EAGLE/Fusion 360

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## TOPICS

- The PCB workspace in Fusion 360 and the Fusion Sync button in EAGLE
- Eagle/Fusion 360 Integration
  - EAGLE to Fusion 360
  - Fusion 360 to EAGLE
- Workflows and Design Situations
- Advantages of integrated ECAD and MCAD



# The PCB workspace in Fusion 360 and the Fusion Sync button in EAGLE

## The PCB workspace in Fusion 360

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<b>&gt;</b>	CREATE ▼     MODIFY ▼       Image: Second se	ASSEMBLE *
	Generation Sweep Loft	
	Hole H H Box Cylinder	
	<ul> <li>Sphere</li> <li>Torus</li> <li>Coil</li> <li>Pipe</li> </ul>	
	Pattern	
	Ereate Form	



## Four Available tools:

PCB Profile





Move PCB Components







# The Fusion Sync button in EAGLE

Define source Fusion 360 design for a PCB component

 ALL pushes and pulls are done through the Fusion Sync button

## 1. Choose Fusion design type

## Link to an existing Fusion design

Choose this option if your PCB needs to fit inside an existing mechanical model. This will enable you to iteratively edit a PCB feature within the context of a single Fusion design.

Fusion Sync [BETA]

## Create new Fusion design

Choose this option if you plan to design mechanical models to fit around your PCB. A new Fusion design will be created for your PCB, which can be inserted into multiple Fusion mechanical models.

Cancel Next >

## 2. Select source

Choose an existing PCB feature from Fusion to link with.

Note: This requires that the PCB feature has already been created in Fusion.

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		DC_LOAD_AU_errorReport.pdf		
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		PTV09A-X		
		PTV09A-X PC edit		
		TV09A-X PC edit v1	Ŧ	





## **EAGLE to Fusion 360**





- PUSH an existing EAGLE board to an empty Fusion 360 design
  - Use the "Create new Fusion design" option in EAGLE
    - Creates a new Fusion design of the PCB board component and the 3D library packages for any electrical components



Fusion Sync [BETA]

## 1. Choose Fusion type

- Link to an existing Fusion design
- Choose this option if your PCB needs to fit inside an existing mechanical model. This will enable you to iteratively edit a PCB feature within the context of a single Fusion design.

## Create new Fusion design

Choose this option if you plan to design mechanical models to fit around your PCB. A new Fusion design will be created for your PCB, which can be inserted into multiple Fusion mechanical models.



## DEMO: EAGLE BOARD TO FUSION 360

SEE CLASS VIDEO FOR RECORDING

## **Fusion 360 to EAGLE**





- Create a PCB component in a Fusion 360 design and PULL to EAGLE
  - 1. Sketch Fusion board profile
  - 2. Create PCB
  - 3. PCB Profile
  - 4. Finish PCB





## DEMO: FUSION 360 TO EAGLE PCB COMPONENT CREATION CUSTOM GRAPHICS CARD

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- Which workflow should be used?
  - Depends on design process! Could have:
    - Standard board into many designs
    - Mechanical design dictates board shape
    - Board and enclosure still being designed





Shimano





# Standard Board into many designs Push into a new Fusion design and insert into

 Push into a new Fusion de assemblies as XREFS



## Create new Fusion design

Choose this option if you plan to design mechanical models to fit around your PCB. A new Fusion design will be created for your PCB, which can be inserted into multiple Fusion mechanical models.





- Mechanical design dictates board shape
  - Create board in Fusion and pull to EAGLE
  - Can derive board shape from assembly



# **board shape** d pull to EAGLE om assembly



- Board and enclosure still being designed
  - Start with Fusion board component
  - Use Fusion board shape to drive throughout design process









## DEMO: EDITING FUSION ASSEMBLY WITH CHANGES TO PCB COMPONENT

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# Advantages of integrated ECAD and MCAD



		- Tusion Sync
		Source
PCB STATUS		Source: PCB2 in 75509 (V4)
loard Shape	Changed	Last edited on 8/23/17 10:34 AM Edit Source
loard Height	Unchanged	View on Web
CB Components	Changed	Pull from Fusion
usion Board Shape	۲	OUT OF SYNC
AGLE Board Shape	0	Pull from Fusion to sync your char Pull from Fusion
		Push to Fusion
0	OK Cancel	OUT OF SYNC
		Push to Fusion to sync your chang

- The electrical, mechanical, and manufacturing teams can work with a single Fusion 360 design and EAGLE board file
- Less file conversions
- Communication! Comments!



Close

Push to Fusion

more?

Reply...



9/30/17, 1:19:13 PM

Section analysis shows some interference between these components and cap, can we move these down or the accessible components up



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