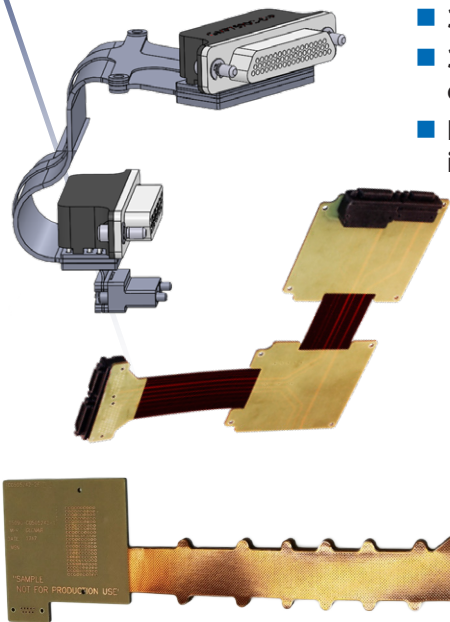


SolidWorks modeling · 3D printed prototyping

MODELING
AND 3D PRINT

Optimized for **Rapid Prototyping**

- 3D representation of flex assemblies using SolidWorks
- 3D printed “paper doll” outline mockups for fit checks with copper clad DuPont™ Kapton® to simulate actual flexibility
- Incorporation of customer-supplied wiring diagram and chassis information in laser-cut mechanical samples



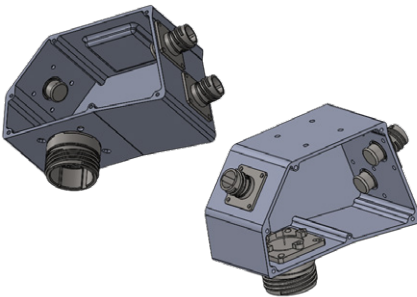
Example SolidWorks and 3D printed paper doll prototype mockups produced by Glenair’s Integrated Flex Assembly team—typical turnaround 2–3 days upon receipt of request for most application designs



Complimentary quick-turn mockups produced by by Glenair: 28-layer rigid flex, and 12-layer multibranch rigid flex

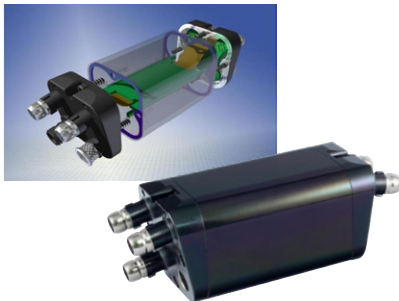
HD Stacker board-to-board connector/flex mockup

3D MODELING OF BOX BUILDS FOR OPTIMAL INTEGRATION OF I/O INTERCONNECTS AND FLEX CIRCUIT ASSEMBLIES



- Customer-supplied STEP file of box with panel cutouts
- Glenair value-added 3D model with connector size and flange modifications

In this example, customer supplied a STEP file of a box enclosure with existing panel cutouts. The Glenair engineering team used SolidWorks to design a specially-modified connector flange, enabling the use of a smaller, higher-density connector, for significant size-and weight-savings.



- Electronic box builds are supported by software-based design and prototyping of I/O connectors and integrated flex circuits
- Process leads to optimized location and routing of internal assembly and I/O interface

This integrated system enclosure, complete with printed circuitry, I/O connectors, and power modules was designed and modeled in SolidWorks prior to production manufacturing.

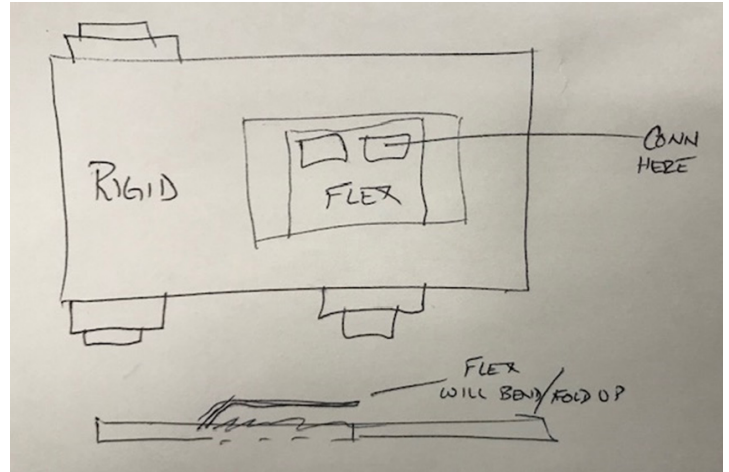
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Typical design and production process

GLENAIR INTEGRATED PCB/FLEX ENGINEERING

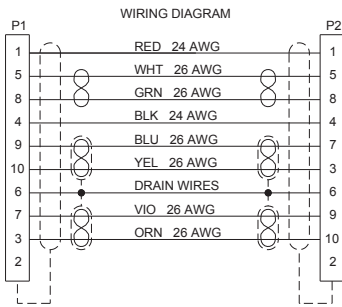
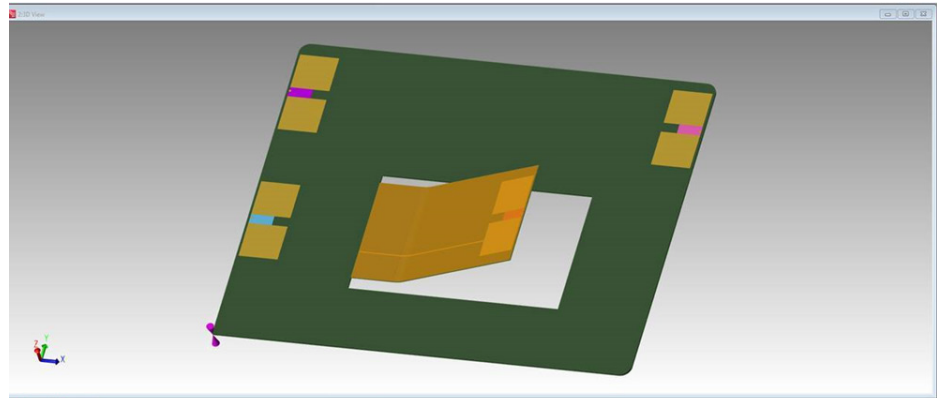
From Concept to Design

The **mechanical schematic design** process typically takes one of two forms: either the customer presents a fully-realized mechanical design, or as is often the case, the process begins with a “napkin sketch” of the project. Here is an example of just such a rough design that kicked off a rigid-flex circuit assembly development process.

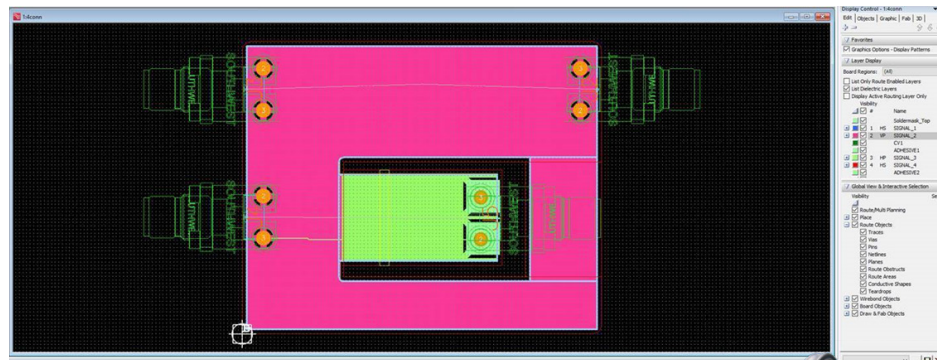


Glenair engineers utilized our **Altium** software to create a functional and problem-free mechanical design for customer review and modification prior to starting the build.

Altium



Electricals: The next step is to define the electricals. To approximate layer count, we need a wiring diagram “schematic” complete with signal types, currents, and shielding requirements. This is also used to determine ROM pricing. In this project, work to this point was completed in just 3 weeks. With the final design approved, we were ready for production manufacturing.



Validation test requirements: Glenair offers complete generation of PCB/flex fabrication data packages including component-level documentation. Most flex customers specify validation testing as a required part of the documentation package. Tests may include DWV/IR, continuity, impedance (eye pattern), and others.

