



**Flexible Circuits, Inc.**

# PWB Design, Fabrication & Assembly Solutions



## CAPABILITIES & SERVICES

E-CAD Support | Prototype | PWB Fabrication | Up-level Assembly and Testing

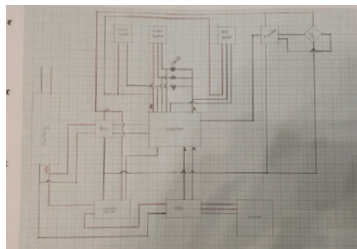
[flexiblecircuits.net](http://flexiblecircuits.net)

# CONCURRENT ENGINEERING SERVICES

## Concept of Design

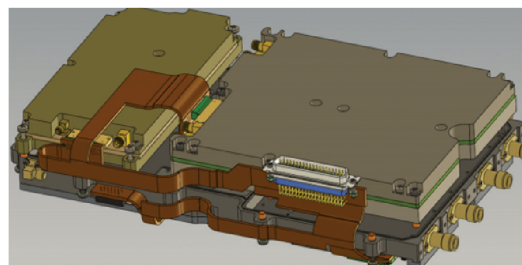
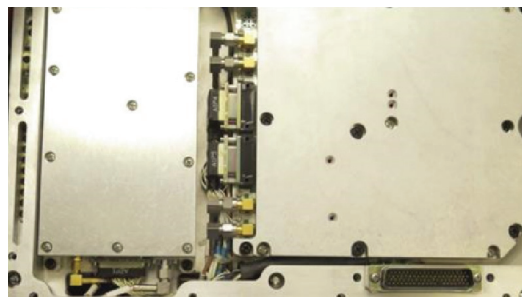
Concurrent Engineering services are available at concept of design and termination selection.

**Best time to remove cost & lead time drivers!**



## Form and Fit

In MCAD, concurrent engineering can help with form factor techniques, suggestions and lessons learned.



## Stack-up Creation and Mechanical Mock-up

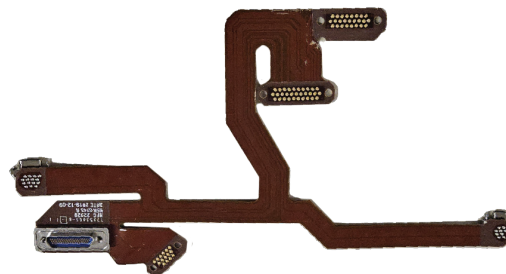
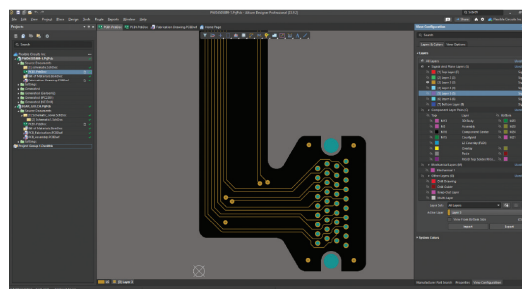
Stack-up Creation is included along with any required signal integrity modeling. Then a complimentary mechanical mock-up to ensure fit.

| Lyr        | Type   | Rigid_1 [14.4]                                     | Flex_1 [20.1]                                      |
|------------|--------|----------------------------------------------------|----------------------------------------------------|
| ✓Solder... |        |                                                    |                                                    |
| ✓L1        | Signal | Fill 1.00 oz. H S4                                 | LF 1.00 Adh/1.00 PLF0110                           |
| ✓newC...   |        | P25 1000-NF (60%) S4                               |                                                    |
| ✓L2        | Signal | AP H oz/ 0.0 adh/ 2.0 mil/ 0.0 adh/ H oz RAAP85250 | AP H oz/ 0.0 adh/ 2.0 mil/ 0.0 adh/ H oz RAAP85250 |
| ✓L3        | Signal |                                                    | LF 1.00 Adh/1.00 PLF0110                           |
| ✓cover...  |        | P25 1000-NF (60%) S4                               |                                                    |
|            |        | P25 1000-NF (60%) S4                               |                                                    |
|            |        | P25 1000-NF (60%) S4                               |                                                    |
| ✓cover...  |        | P25 1000-NF (60%) S4                               |                                                    |
| ✓L4        | Signal | AP H oz/ 0.0 adh/ 2.0 mil/ 0.0 adh/ H oz RAAP85250 | AP H oz/ 0.0 adh/ 2.0 mil/ 0.0 adh/ H oz RAAP85250 |
| ✓L5        | Signal |                                                    | LF 1.00 Adh/1.00 PLF0110                           |
| ✓cover...  |        | P25 1000-NF (60%) S4                               |                                                    |
|            |        | P25 1000-NF (60%) S4                               |                                                    |
|            |        | P25 1000-NF (60%) S4                               |                                                    |
| ✓cover...  |        | P25 1000-NF (60%) S4                               |                                                    |
| ✓L6        | Signal | AP H oz/ 0.0 adh/ 2.0 mil/ 0.0 adh/ H oz RAAP85250 | AP H oz/ 0.0 adh/ 2.0 mil/ 0.0 adh/ H oz RAAP85250 |
| ✓L7        | Signal |                                                    | LF 1.00 Adh/1.00 PLF0110                           |
| ✓newC...   |        | P25 1000-NF (60%) S4                               |                                                    |
| ✓L8        | Signal | Fill 1.00 oz. H S4                                 | LF 1.00 Adh/1.00 PLF0110                           |
| ✓Solder... |        |                                                    |                                                    |



## E-CAD Support through PWB Fabrication & Assembly

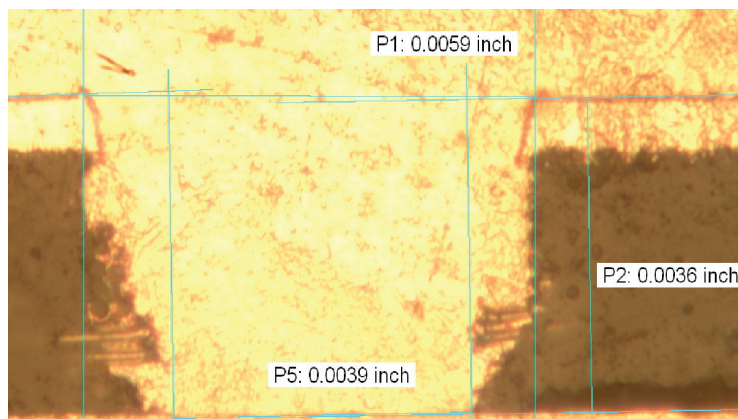
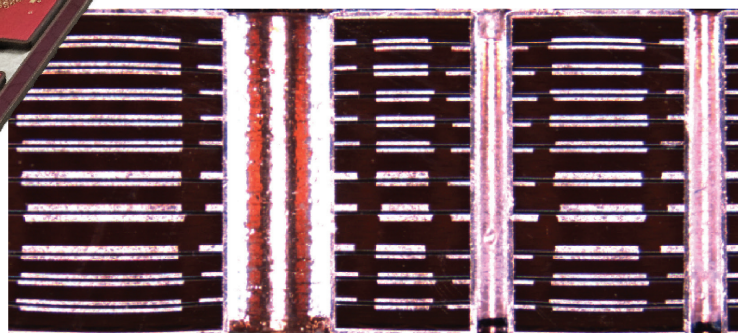
Knowledgeable artwork design with DFM with full turn key support through assembly.





## PWB CAPABILITIES & SERVICES

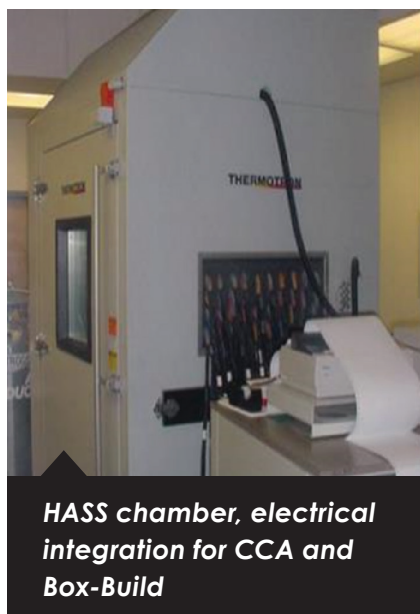
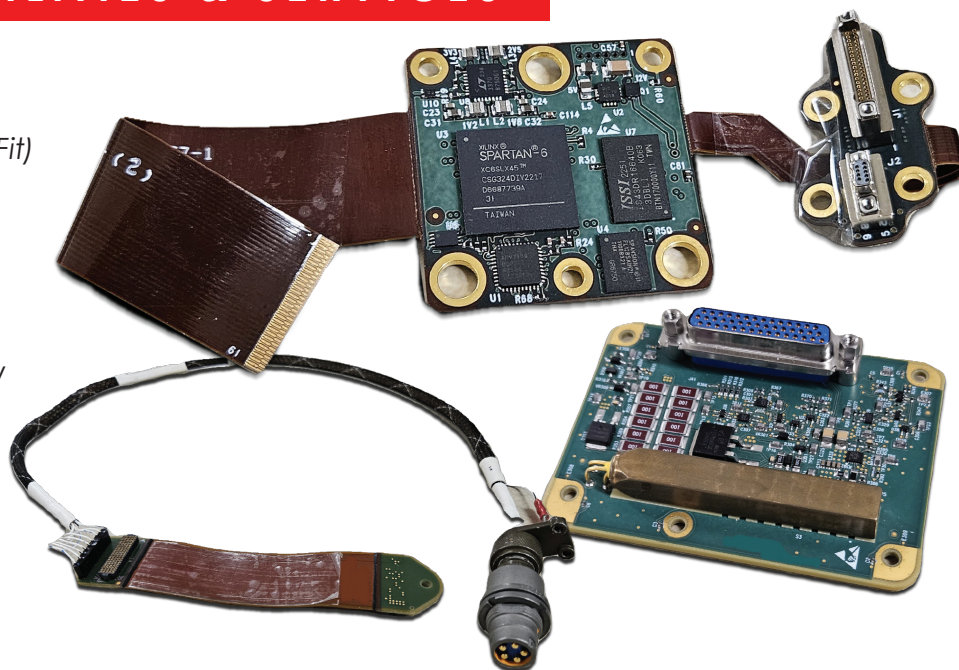
- Flexible and Rigid Substrates
- Mechanical Layer-to-Layer Alignment
- High Temperature Lamination  
(Fusion Bonding)
- Blind & Buried Microvias
- Via In Pad, Conductive  
& Non-Conductive
- Bookbinder Technology



|                                                          |                                                                                         |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>Panel Size</b>                                        | 18"x24" & 24"x30"                                                                       |
| <b>Layer Count</b>                                       | Up to 40                                                                                |
| <b>Minimum Core Thickness</b>                            | 0.001"                                                                                  |
| <b>Maximum Panel Thickness</b>                           | 0.250"                                                                                  |
| <b>Maximum PTH Aspect Ratio</b>                          | 15:1                                                                                    |
| <b>Minimum Mechanical Drill Hole</b>                     | 0.0079"                                                                                 |
| <b>Laser Drilled Microvias</b>                           | 0.006" @ 0.75:1                                                                         |
| <b>Copper Weights</b>                                    | 1/2oz-4oz                                                                               |
| <b>Minimum Line Width &amp; Space (Internal, 1/2 oz)</b> | .002"/.002"                                                                             |
| <b>Minimum Line Width &amp; Space (External)</b>         | .004"/.004"                                                                             |
| <b>Materials</b>                                         | Adhesiveless & Adhesive Flexible Clad, Polyimide, FR4, Dupont HT & TK, Rogers, Taconics |
| <b>Final Finish</b>                                      | HASL, ENIG, ENEPIG, Electrolytic Ni/Au, IS                                              |

## ASSEMBLY CAPABILITIES & SERVICES

- Thru-hole Assembly
- Surface Mount Assembly
- Compliant Pin Assembly (Press-Fit)
- X-ray Inspection
- ICT and Functional Testing
- Environmental Stress Screening  
(under electrical test capable)
- Cable & Wire Harness Assembly
- Box Build
- J-STD-001 ES Trained Operators



|                                       |                                                                            |
|---------------------------------------|----------------------------------------------------------------------------|
| Maximum Stencil Area                  | 20" x 20"                                                                  |
| Maximum # of Discrete Components      | 180                                                                        |
| Smallest Component                    | 1005                                                                       |
| BGA Component                         | 0.2mm                                                                      |
| Maximum Selective Solder Area         | 20" x 20"                                                                  |
| Complex Selective Solder Pitch        | None. Precise robotic 5 axis soldering available.                          |
| Electrical Testing (Hi-pot Isolation) | 1500 VDC                                                                   |
| Conformal Coatings                    | Acrylic, Urethane, Silicone                                                |
| Pottings/Encapsulation                | All epoxy and RTV types                                                    |
| ESS Capability                        | -100C to 200C Temp range. 2 Hz to 10kHz Vibration Up to 50 GRMS Vibe level |

For further assistance contact  
**Dave Stollsteimer**  
 215.327.3987  
[dstollsteimer@flexiblecircuits.net](mailto:dstollsteimer@flexiblecircuits.net)



**Flexible Circuits, Inc.**

222 Valley Rd Warrington, PA 18976 | 215.343.2300 | F: 215.343.2075 | [flexiblecircuits.net](http://flexiblecircuits.net)