

Flex Interconnect Technologies (FIT) is a leader in providing flexible printed circuits and rigid-flex solutions. We solve our customers' unique challenges with elegant interconnect solutions and help them launch reliable products to market in a timely fashion. FIT distinguishes itself from its competition by offering excellence in "end-to-end" services including applications engineering, design layout, fabrication, assembly and test. Our customers say that we are dependable, trustworthy and work in a true partnership.

CUSTOM SOLUTIONS

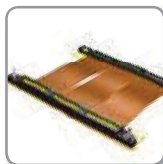
FIT's strength is in providing comprehensive engineering expertise, knowledge base and high tech manufacturing experience to take a project from conceptual stage to finished product. All design layouts are done on Allegro, or Altium platforms which allows our customers to easily import the design database into their CAD tools. FIT specializes in rapid turnaround time during the new product development phase and can support smooth ramp up to production volumes. We have earned our reputation as one of the most reliable, accomplished and fastest growing flex circuit solutions companies in the industry by taking care of our customers.

STANDARD CABLE SOLUTIONS

FIT has been Samtec's exclusive manufacturing partner for standard and custom flex circuits since 2002. Detailed specifications of High Speed Data Link cables designed by Samtec are available at www.FIT4FLEX.com/Samtec. FIT does not charge NRE for the following standard cables:



HFEM-DP
HFEM-SE



HFEM2-DP
HFEM2-SE



HFHM-DP



ERDL2-DPG
ERDL2-SEG



T CDL2-DP
T CDL2-SE



TFMDL



ZHDL2





KEYS TO YOUR SUCCESS

We believe that our success is only measured by our customers' success. By offering specialized services to tailor fit each type of need, we are able to support your programs from beginning to end with the greatest end result - your success.

APPLICATION ENGINEERING



Flexible circuits is a dynamic solution with unique challenges where many design considerations need to be discussed. Our engineers are skilled at advising on best practices to yield reliable products. This complimentary service is at your fingertips to provide you with stack up reviews, material selections, DFM's and stress failure analysis. We are also available for free educational seminars on various topics of interest for your team.

RAPID PROTOTYPING & DOMESTIC PRODUCTION DESIGN FABRICATION ASSEMBLY



Located in Silicon Valley with fast-paced culture, we understand our customers' fast turn-time needs from design layout, all the way to complete turnkey assembly. We are able to layout a design in as little as 24hrs. With our fast track systems in place our customers have the option of getting their complete design, fabrication and assembly of product in 10 days. Single sided quick turns are achievable on a 3 day turn and a double sided design can be done in 4 days. Our assembly offerings can also be accomplished in 24hrs. We can seamlessly ramp up your program to domestic production quantities as the product matures.

OFFSHORE OFFERINGS FLEX CIRCUITS RIGID-FLEX CIRCUITS RIGID PCBs ASSEMBLY



Our offshore program is very different than a typical broker. Because FIT is a reputed manufacturer of flex circuits in the US, protection of its "reputation" as a quality supplier is the most important aspect to retain its customers trust. FIT has an office in China to help support your supply chain management needs. We guarantee 100% verification that the products are built to the customer's quality requirements. This unique offering gives our customers leverage in aggressive pricing without risking quality and keeping deliveries on time.

MFG. CAPABILITIES	STANDARD	ADVANCED
Min Trace/Space	75 microns	50 microns
Smallest Mechanical Drill	0.150 mm	0.100 mm
Smallest Laser Drill	0.075 mm	0.050 mm
Max Aspect Ratio	8:1	10:1
Max Blind Via Aspect Ratio	0.7:1	1:1
Min Internal Pad Size	DHS* + 0.350 mm	DHS* + 0.200 mm
Min Clearance Pad Size	DHS* + 0.600 mm	DHS* + 0.400 mm
Min External Pad Size	DHS* + 0.250 mm	DHS* + 0.200 mm
Min Pad Size for Selective Plating	DHS* + 0.450 mm	DHS* + 0.400 mm
Min Soldermask Clearance	0.075 mm per side	0.050 per side
Min Soldermask Webbing	0.150 mm	0.100 mm
Min Mask defined Pad Diameter	0.125 mm	0.100 mm
Min Coverlay Clearance	0.200 mm per side	0.125 mm per side
Min Feature-to-Board Edge	0.250 mm	0.075 mm
Number of Layers	1 to 24	up to 30
HDI capabilities	Yes	Tatsuta Paste
Max Flex Length	57.15 cm	Greater than 58 cm
Via Fill Capability	Yes	Yes
Max Board Thickness	2.40 mm	3.10 mm
Min Copper Weight	9 to 18 micron	0.4 to 5 micron
Max Copper Weight	3 oz	4 oz
Shielding Method	Copper, Tatsuta, Silver Ink	Copper, Tatsuta, Silver Ink
Impedance Tolerance	+/- 10%	+/- 5%
Assembly	BGA, uBGA, Hot Bar, ACF Bonding, Flip Chip, Die Attach, 0201	
Testing	Flying Probe, Functional, JTAG, ICT	
Conformal Coating	Yes	Yes
Surface Finish	ENIG, ENEPIG, Soft Gold, Hard Gold, OSP, HASL, Lead-free HASL	
Panel Size	9x12, 12x12, 12x18, 12x24	

*DHS = Drill Hole Size

QUICKTURN CAPABILITIES		
Single Sided	5 days	3 days
Double Sided	5 days	4 days
Multilayer upto 6 layers	7 days	5 days
Multilayer over 7 to 10 layers	10 days	8 days
Multilayer over 10 layers	20 days	15 days
Assembly	3 days	24 hours
Design	4 days	24 hours

MATERIALS		
	Dupont, Taiflex, Thinflex, Panasonic	Dupont APR, Dupont LG, Embedded Passives, Tatsuta

DESIGNING RELIABLE FLEX CIRCUITS

Bend Area Consideration:

- ✓ Route traces perpendicular to bend line
- ✓ Traces must be evenly spaced across the bend area, wide & uniform, and staggered on adjacent layers
- ✓ Sharp angles should be avoided
- ✓ Traces should always come out perpendicular to the rigid edge, when transitioning to the flexible region
- ✓ Cross-hatch ground and plane layers, especially in the bend area
- ✓ Number of layers at the bend area should be kept at a minimum
- ✓ Flex layers can be separated (loose-leaf) for multilayer construction to increase flexibility
- ✓ Mechanical slots, slits or ICT custom hinge design can be used to increase flexibility
- ✓ No vias or PTH should be placed in the flex region, unless used for shielding or away from bend region
- ✓ Use RA copper grain direction for dynamic flexing or tight bend radius
- ✓ Conductors should be close to neutral axis, especially for dynamic application
- ✓ Minimize the dielectric thickness to reduce stress on the conductors
- ✓ Follow minimum bend radius rules

Pads, Holes & Mask Consideration:

- ✓ Tear-drop all pads and tie-down all unsupported pads
- ✓ Pad size should be large enough for selective plating the holes
- ✓ All vias should be in the stiffened/rigid area
- ✓ Stiffener holes should be at least 20 mils larger than finished hole size
- ✓ Gang open the coverlay wherever possible
- ✓ Use LPI/Coverlay combo for fine pitch components such as BGA, CSP, etc.
- ✓ Allow for possible squeeze out of the adhesive onto the pads

Strain Relief Consideration:

- ✓ Radius all inside corners. Additionally copper trace can be used as tear stop
- ✓ Use holes at the end of slits or slots as tear stop
- ✓ Use epoxy bead in the rigid to flex transition area
- ✓ Use appropriate stiffener thickness and material to support solder joints
- ✓ Keep vias, holes and SMT features at least 25 mils away from the board edge
- ✓ Vias on rigid-flex should be minimum 50 mils away from the rigid-to-flex transition area
- ✓ Never have edge of coverlay opening and edge of stiffener right on top of each other

Material Selection Consideration:

- ✓ Take into account stress due to environment such as Temperature, Vacuum, Vibration, Bends, etc.

Have Support Questions? Contact us at (408) 635-3544 or support@FIT4FLEX.com

INDUSTRIES WE SERVE

Medical Military Aerospace Industrial Automotive Wearable IoT