

## Printed Circuit Board Layout Services & Capabilities

ACDi is an industry leader in printed circuit board (PCB) layout and design. Founded in 1984, ACDi has completed over 10,000 designs. Our team of designers and component librarians has over a century of combined experience in the field. A high mix of clients in various market sectors contributes to ACDi's expertise across a wide-range of board technologies.

### Core Competencies

- 2-36 Layer Boards
- Organic and Ceramic Substrates
- High-speed Digital, High-Frequency RF/Microwave
- IPC Class 2 and Class 3 Designs
- Up to 7 Lamination Cycles
- Up to 36 Layer Rigid-Flex Designs
- Backdrills, Blind/Buried Vias, Microvias
- Design for Cost/Assembly/Manufacturability

### Qualifications

- 400+ Designs Per Year
- 10,000th PCB Design Milestone 2018
- Team Has Over a Century of Design Expertise

### What We Need to Kick Off Your Project

#### Required

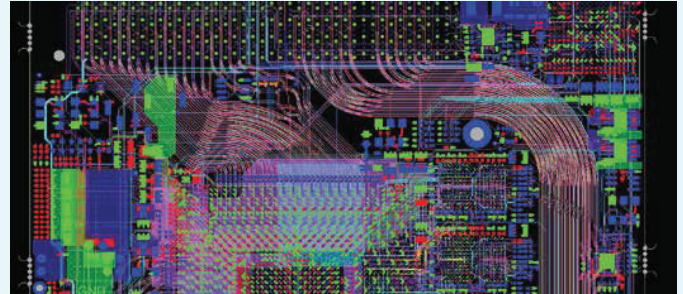
- Schematic (.pdf)
- Bill of Material (.xls)
- Netlist (.asc, .schdoc, [pstchip, pstnet, pstprt])
- Layout Software Preference

#### Optional

- Mechanical (.pdf or .dxf)
- SOW (critical nets, current draws, PCB/CCA part numbers, board markings, etc.)

### Deliverables at Completion of Design

- Gerber Files (copper, silkscreen, soldermask, solder paste)
- Drill Files
- IPC-356 Netlist
- ODB++ or .asc
- PWB Drawing
- CCA Drawing
- Additional Files/Drawings Available by Request



### Certifications & Compliance

- AS9100D Certified
- ISO 9001:2015
- ITAR Registered
- NIST 800-171 Compliant
- SAM Registered
- ANSI/ESD S20.20-2021 Certified
- Small Business
- RoHS Compliant

### Our Facilities

#### Frederick, MD

7435 New Technology Way, Ste A  
Frederick, MD 21703  
301-620-0900  
[intouch@acdi.com](mailto:intouch@acdi.com)

#### Nashville, NC

100 Industry Ct  
Nashville, NC 27856  
252-462-4700

#### Branford, CT

33 Business Park Drive #4  
Branford, CT 06405  
203-488-5795

#### Kilmarnock, VA

140 Technology Park Drive  
Kilmarnock, VA 22482  
804-435-0328

PCB Layout Process Flow Chart

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**Data Preparation**

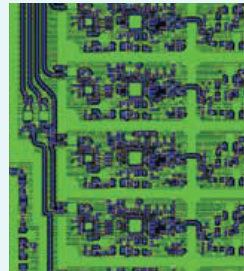
- Footprint Creation
- Bill of BOM/Schematic Check(.xls)
- Board Outline Built In
- Netlist Integrity Check
- Fixed Components Placed



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**Kick-off Call**

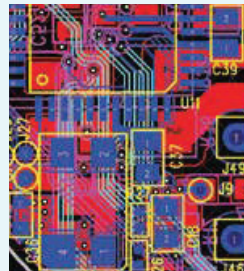
- Designer Assigned
- Introduction Call to Discuss Board Strategy



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**Placement**

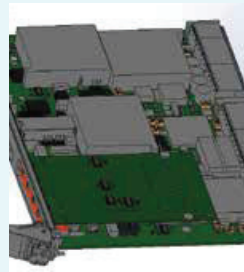
- Components Placed on Board
- Mechanical Models Available for Review
- Design Sent for Placement Review



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**Stack-up Development**

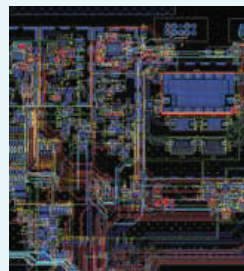
- Layer Count
- Copper Weights
- Controlled Impedances
- Dielectric Selection
- ROHS?
- Via Topology



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**Critical Routing**

- RF
- Matched Length Busses
- DDR
- Differential Pairs
- CLKs
- Sent for Routing Review



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**Power/GND Planes**

- Splits Put in for Planes
- Sent for Routing Review
- 1 Amp Per Via
- Copper Calculations Made

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**Routing**

- Hand-routed or Auto-routed
- Send for Routing Review

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**Approval**

- Customer signs off on design, indicating there will be no more changes

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**Internal Reviews**

- 3 ACDi Designers Conduct Peer Review
- Netlist Analyzer
- Valor for DFM
- DRC Check

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**Documentation**

- Printed Wiring Board (PWB) Drawing
- Panel Drawing
- Circuit Card Assembly (CCA) Drawing

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**Post Processing**

- Generation of All Deliverables