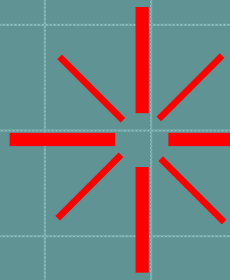


***“The Right Partner for
Printed Circuit Board
Design”***



Limat Graphics

COMPANY OVERVIEW

**Limat Graphics
128 E. Liberty St.
Danbury, CT 06810-6773
(203) 798-9771**

- ◆ Full Service Printed Circuit Board Design Center
- ◆ In Business Since 1981
- ◆ Engineering Based Service Bureau
 - ◆ Staffed with Twelve Engineers



Limat Graphics

SERVICES AVAILABLE

- ◆ Printed Circuit Board Design
- ◆ Simulation
- ◆ Product Re-engineering
- ◆ Printed Circuit Board Fabrication & Assembly
- ◆ PCB Photo Plotting (24x36)
- ◆ Postscript Imagesetting (24x36)
- ◆ Overnight Graphic to Postscript file conversion



Limat Graphics

PRINTED CIRCUIT BOARD DESIGN

- ◆ **High Performance Backplane and Mid-planes**
- ◆ **High Speed Circuit Cards**
- ◆ **Power Distribution**
- ◆ **Regulatory Compliance**
NEBS, FCC, UL, IEC, CE
- ◆ **Design For Manufacturability**
- ◆ **Packaging and Technology Selection**
Blind/Buried via, Aspect ratios, SMT, Dielectric, etc.
- ◆ **Various Database Formats**
Allegro, Mentor, Pads, PCAD, OrCAD, Protel, etc.



Limat Graphics

SIMULATION

- ◆ **Transmission Lines**
Frequency Domain, Skin Effects
- ◆ **Connector Characterization**
- ◆ **Component Measurements and Modeling**
- ◆ **Network Analysis**
- ◆ **Power Plane Modeling**
- ◆ **Frequency Domain Simulation**
- ◆ **3D Electro Magnetic Modeling**
- ◆ **Dielectric and Stack-ups**



Limat Graphics

PRODUCT RE-ENGINEERING

- ◆ **Changes/Upgrades to existing designs**

The resulting upgrade can usually be manufactured for less than the original cost. This is achieved by incorporating new technology.



Limat Graphics

PCB FABRICATION & ASSEMBLY

◆ Established Relationships with Many Vendors

DFM, Competitive Pricing, Technical Capabilities

◆ Qualifications and Approvals

ISO 9002, MIL, NASA-STD, WS, ELV, UL

◆ Quicker Turn-Around



Limat Graphics

PCB & POSTSCRIPT PLOTTING

- ◆ **Up to 25" x 36" Film Size**

- ◆ **Same Day Service**

- ◆ **Postscript File Conversion Service**

Graphic Files → Postscript Files for your Imagesetter

- ◆ **.00025 Resolution**

- ◆ **+/- .001 Geometric Accuracy**

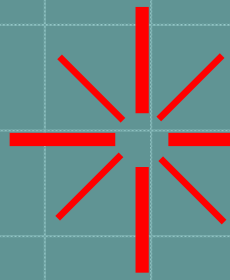
- ◆ **File Editing, Panelization, and Paint & Scratch**



Limat Graphics

ADVANTAGES

- ◆ **The Limat Staff**
- ◆ **Reduced Time To Market**
- ◆ **Cost Savings**
- ◆ **Design For Manufacturability**
- ◆ **Quality Control**



Limat Graphics

THE LIMAT STAFF

- ◆ **Industry Experts in PCB Design**
- ◆ **Multiple Designers for “On-Time” Delivery**
- ◆ **Familiar With ALL New Technologies**



Limat Graphics

REDUCED TIME TO MARKET

- ◆ **All Design Tools On-Hand**
- ◆ **Multiple Designer Capabilities**
- ◆ **Tools are “Design Rules” Driven for
Error-Free Single Pass Designs**
- ◆ **Extensive Design Rules Checking
Eliminates Layout Cycles**



Limat Graphics

COST SAVINGS

- ◆ **Shorter Design Cycle**
- ◆ **Capital Expenses for Design Equipment is Eliminated**
- ◆ **Design Personnel Liabilities are Eliminated**
- ◆ **Utilization of New PCB Technology Can Drastically Reduce Manufacturing Costs**



Limat Graphics

DESIGN FOR MANUFACTURABILITY

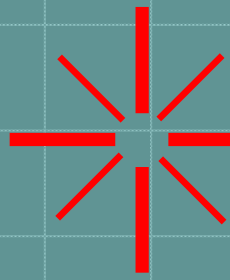
- ◆ **Utilization of New PCB Technologies**
- ◆ **Familiar With Fabricator's Capabilities**
- ◆ **Eliminates Unnecessary Re-Designs**
- ◆ **Designs Can Be Multi-Sourced Without Concern**



Limat Graphics

QUALITY CONTROL

- ◆ **Independent QC Engineering**
 - ◆ **Reviews Each Design for 100% compliance to customer input and Package Models**
- ◆ **Tools are Design Rules Driven**
 - ◆ **Eliminates Error, Simplifies Design Check, Guarantees Design Characteristics**
- ◆ **Data is From Single Data Base**
 - ◆ **Insures End-to-End Continuity of ALL Design Documents**



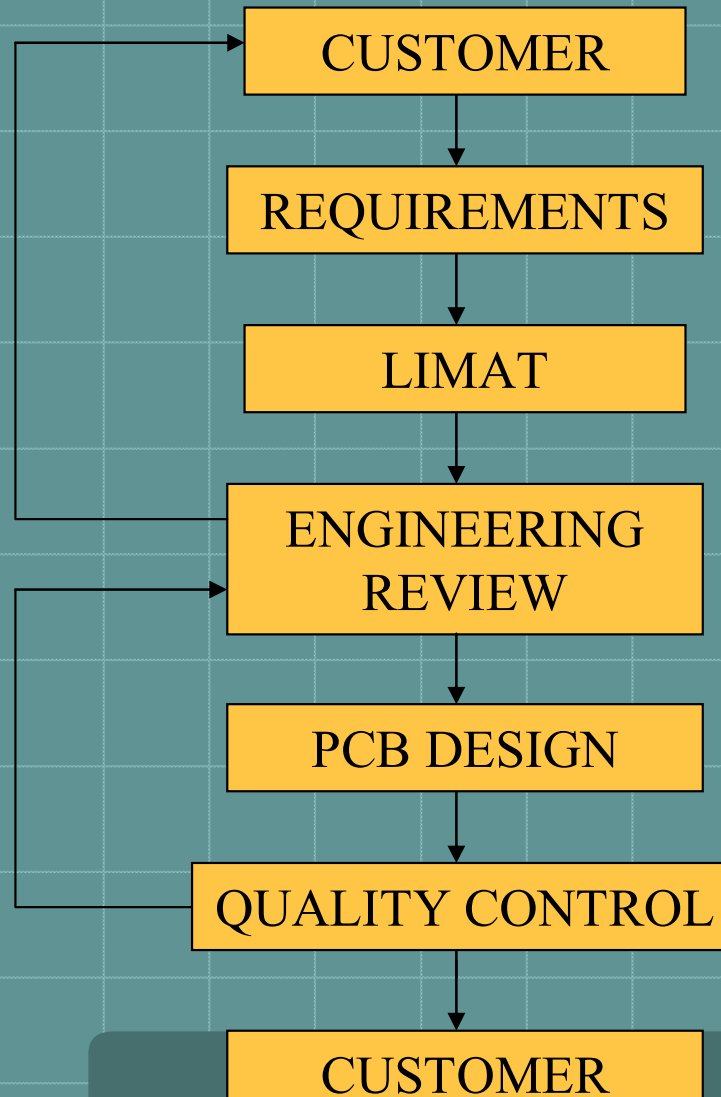
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CLIENTS

- ◆ **TYCO**
- ◆ **Amphenol Backplane Systems**
- ◆ **Paragon Networks**
- ◆ **Westlock Controls**
- ◆ **Northrop Grumman**
- ◆ **Nokia**
- ◆ **EMC**

Limat Graphics

TYPICAL DESIGN FLOW





Limat Graphics

GETTING STARTED

◆ Put Together the Following Material:

(If Desired: We Can Assist With This)

- ◆ Bill of Materials**
- ◆ Board Outline**
- ◆ Schematic**
- ◆ Deliverable Requirements**
 - ◆ Schedule, Special Requirements, etc.**

◆ Contact Limat For Detailed Information

◆ (203) 798-9771 x109 or ed@limat.com