SAMPLE IMAGES FROM IPC-CD-B1

The following document contains promotional samples from the clip art CD-ROM: **IPC-CD-B1 /Printed Circuit Board Fabrication Graphics.** This PDF sample has low resolution images, to make downloads faster. The actual product itself (CD-B1) contains 100 images in TIF file format. All images are full color, 640x480, 72 DPI, and average 900KB each.The CD contains on optional image browser for ease of use. Complete process names and individual image descriptions are provided for every graphic. (See complete list on the final page of this document.)

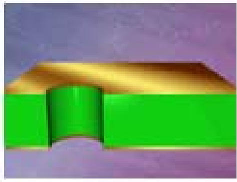
These thumbnail samples are from copyrighted images, and are not to be used in any way without prior written approval of IPC. Purchase of IPC-CD-B1 is required to access and use original images represented herein. A copy of the actual License Agreement for the product is included below. Clip art CD-ROMs contain images which can be electronically modified and reproduced in any format for educational or other technical use within one or multiple company sites. You may compress, translate formats, or otherwise electronically adapt clip art images to suit your needs. Clip art images are not licensed for use in products intended for resale. Credit to IPC must be given somewhere in document/presentation for images used.

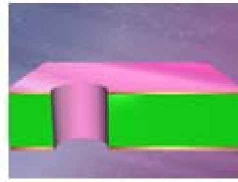
Purchase of these images allows for the following legal usage --

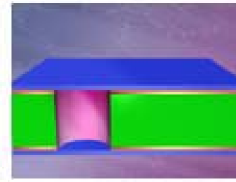
License Agreement:

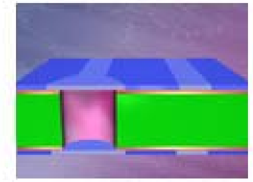
IPC grants you a personal, nontransferable, nonexclusive right to copy the images contained within this CD-ROM onto your computer hard drive. These copyrighted images may be duplicated, with acknowledgement to IPC, only for educational purposes of the Licensee: e.g., reprinting in workmanship standards, technical presentations, in-house multimedia training programs, company newsletters, etc. These images may not be used by Licensee in products intended for resale except as expressly permitted hereby, without the prior written approval of IPC.

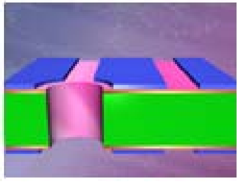
©2002 IPC. All rights reserved

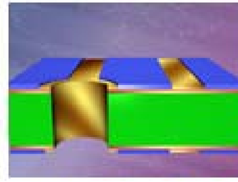

IMG001

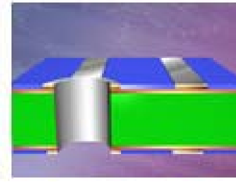

IMG002

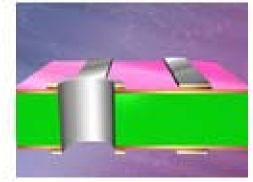

IMG003

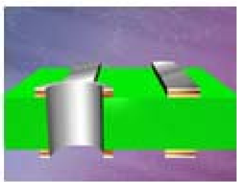

IMG004


IMG005


IMG006

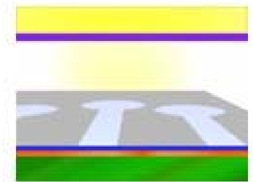

IMG007

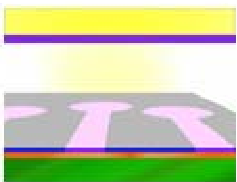

IMG008

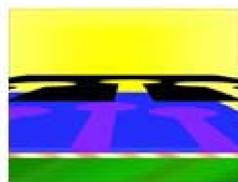

IMG009

IMG010

IMG011


IMG012

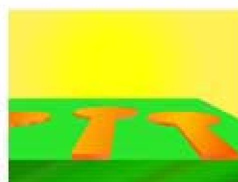

IMG013


IMG014

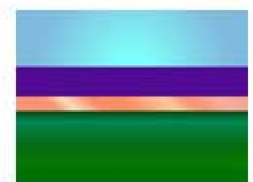
IMG015

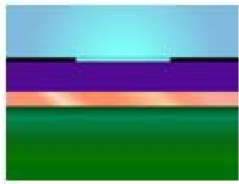
IMG016

IMG017

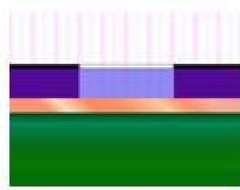

IMG018

IMG019

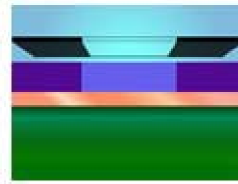

IMG020



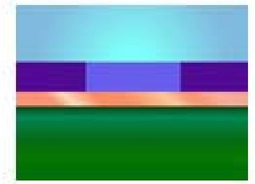
IMG021



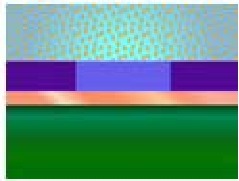
IMG022



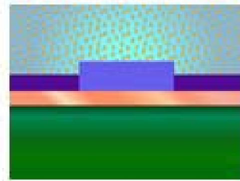
IMG023



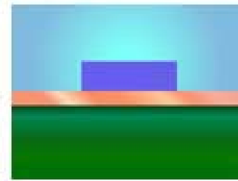
IMG024



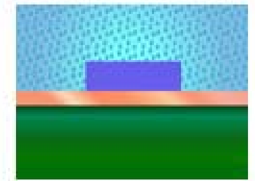
IMG025



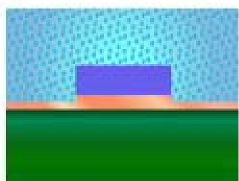
IMG026



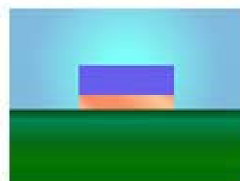
IMG027



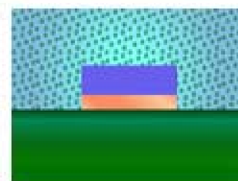
IMG028



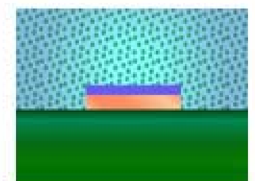
IMG029



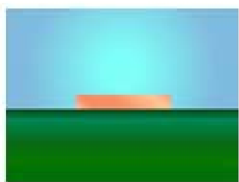
IMG030



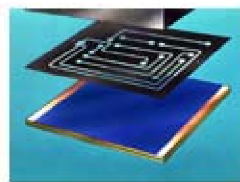
IMG031



IMG032



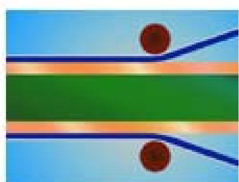
IMG033



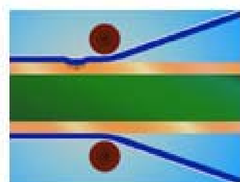
IMG034

IMG035

IMG036

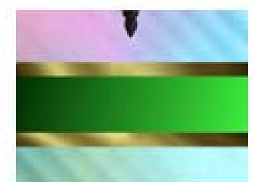


IMG037



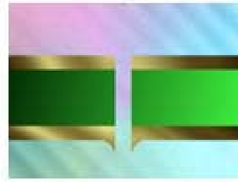
IMG038

IMG039

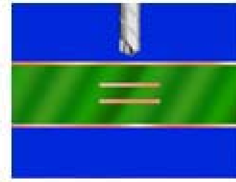


IMG040

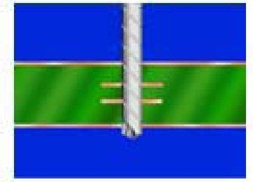
IMG041



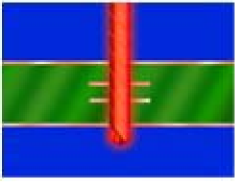
IMG042



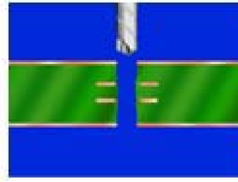
IMG043



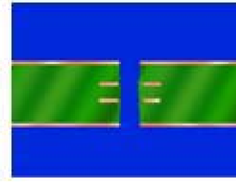
IMG044



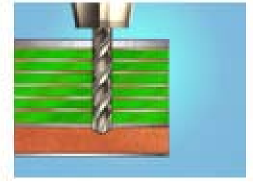
IMG045



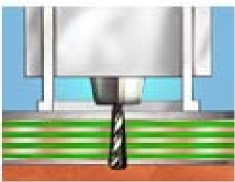
IMG046



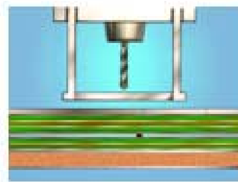
IMG047



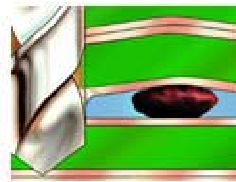
IMG048



IMG049

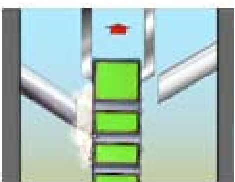


IMG050

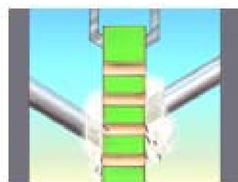


IMG051

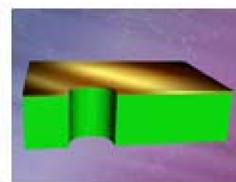
IMG052



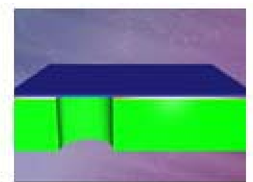
IMG053



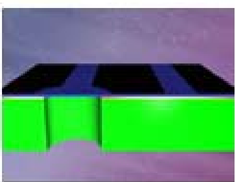
IMG054



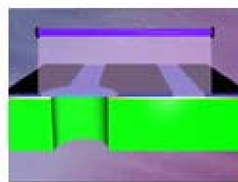
IMG055



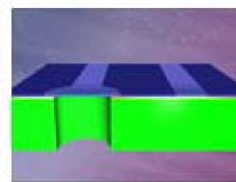
IMG056



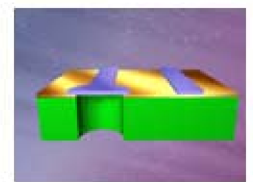
IMG057



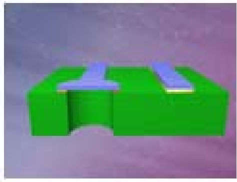
IMG058



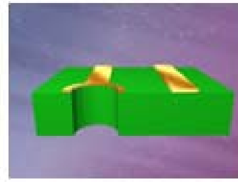
IMG059



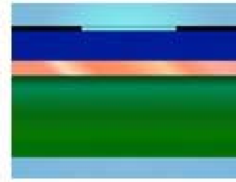
IMG060



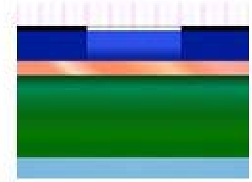
IMG061



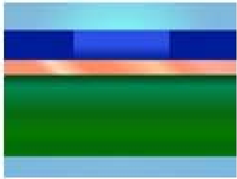
IMG062



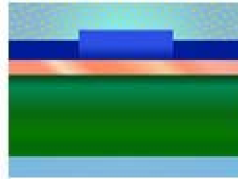
IMG063



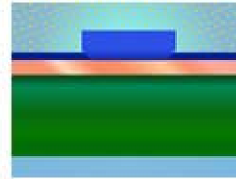
IMG064



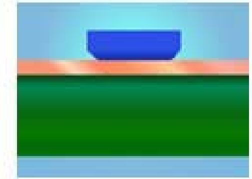
IMG065



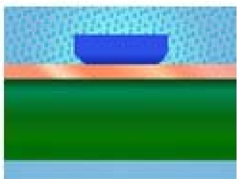
IMG066



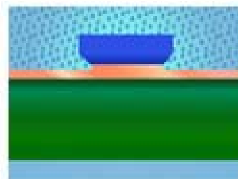
IMG067



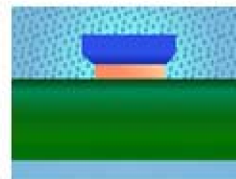
IMG068



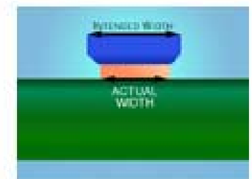
IMG069



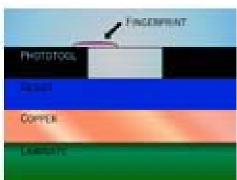
IMG070



IMG071

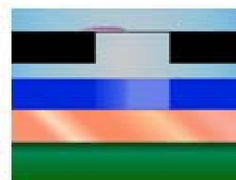


IMG072

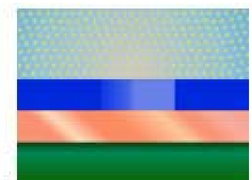


IMG073

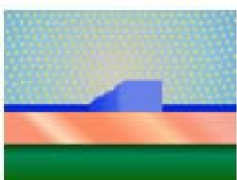
IMG074



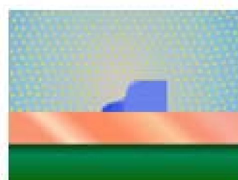
IMG075



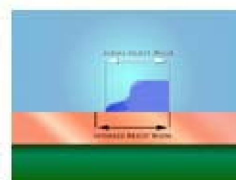
IMG076



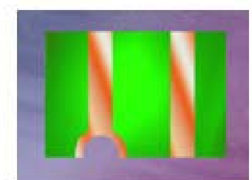
IMG077



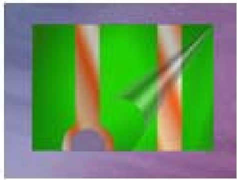
IMG078



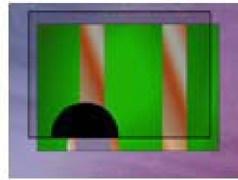
IMG079



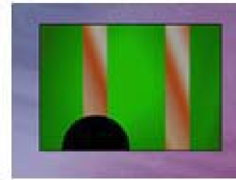
IMG080



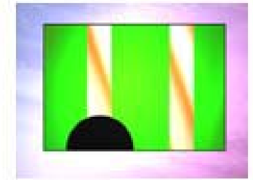
IMG081



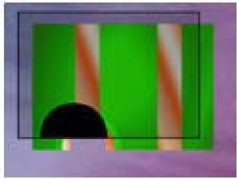
IMG082



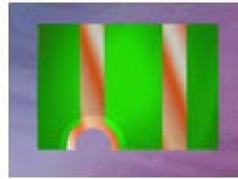
IMG083



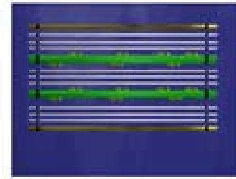
IMG084



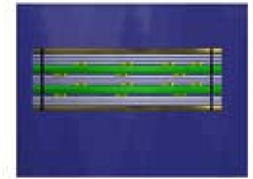
IMG085



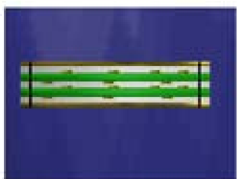
IMG086



IMG087

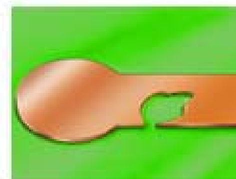


IMG088

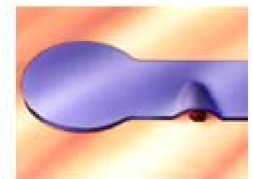


IMG089

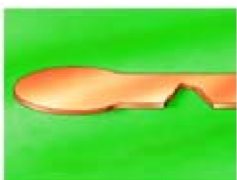
IMG090



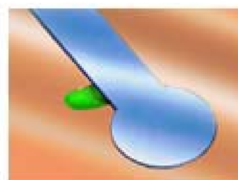
IMG091



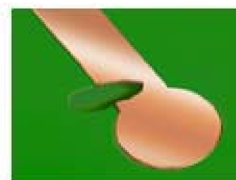
IMG092



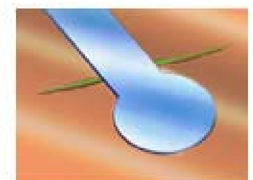
IMG093



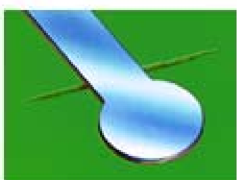
IMG094



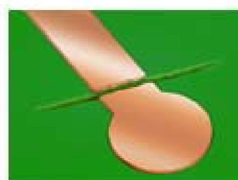
IMG095



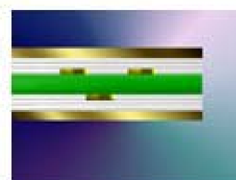
IMG096



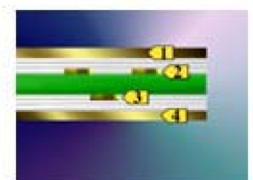
IMG097



IMG098



IMG099



IMG100

Process Names & Image Descriptions

[IMG001]
Double-Sided PWB Fabrication Process (1 of 9)
Drilling.

[IMG002]
Double-Sided PWB Fabrication Process (2 of 9)
Electroless copper deposition.

[IMG003]
Double-Sided PWB Fabrication Process (3 of 9)
Photoresist lamination.

[IMG004]
Double-Sided PWB Fabrication Process (4 of 9)
Imaging.

[IMG005]
Double-Sided PWB Fabrication Process (5 of 9)
Development.

[IMG006]
Double-Sided PWB Fabrication Process (6 of 9)
Copper plating.

[IMG007]
Double-Sided PWB Fabrication Process (7 of 9)
Tin-lead plating.

[IMG008]
Double-Sided PWB Fabrication Process (8 of 9)
Resist stripping.

[IMG009]
Double-Sided PWB Fabrication Process (9 of 9)
Etching.

[IMG010]
Innerlayer Fabrication (1 of 10)
Phototool application.

[IMG011]
Innerlayer Fabrication (2 of 10)
Phototool positioned.

[IMG012]
Innerlayer Fabrication (3 of 10)
Imaging.

[IMG013]
Innerlayer Fabrication (4 of 10)
Polymerization.

[IMG014]
Innerlayer Fabrication (5 of 10)
Phototool removed.

[IMG015]
Innerlayer Fabrication (6 of 10)
Latent image on resist.

[IMG016]
Innerlayer Fabrication (7 of 10)
Developing.

[IMG017]
Innerlayer Fabrication (8 of 10)
Etching.

[IMG018]
Innerlayer Fabrication (9 of 10)
Stripping.

[IMG019]
Innerlayer Fabrication (10 of 10)
Oxide coating.

[IMG020]
Print and Etch Process (1 of 14)
Unexposed resist.

[IMG021]
Print and Etch Process (2 of 14)
Phototool application.

[IMG022]
Print and Etch Process (3 of 14)
Imaging.

[IMG023]
Print and Etch Process (4 of 14)
Phototool removal.

[IMG024]
Print and Etch Process (5 of 14)
Polymerized (hardened) resist.

[IMG025]
Print and Etch Process (6 of 14)
Developing chemistry.

[IMG026]
Print and Etch Process (7 of 14)
Partially developed.

[IMG027]
Print and Etch Process (8 of 14)
Fully developed.

[IMG028]
Print and Etch Process (9 of 14)
Etching chemistry.

[IMG029]
Print and Etch Process (10 of 14)
Partially etched.

[IMG030]
Print and Etch Process (11 of 14)
Completely etched.

[IMG031]
Print and Etch Process (12 of 14)
Stripping chemistry.

[IMG032]
Print and Etch Process (13 of 14)
Partially stripped.

[IMG033]
Print and Etch Process (14 of 14)
Completely stripped.

[IMG034]
Imaging Series (1 of 2)
Overview of imaging materials and equipment.

[IMG035]
Imaging Series (2 of 2)
Imaging.

[IMG036]
Dry Film Photoresist/Lamination (1 of 4)
Dry film photoresist.

[IMG037]
Dry Film Photoresist/Lamination (2 of 4)
Dry film photoresist lamination.

[IMG038]
Dry Film Photoresist/Lamination (3 of 4)
Dry film photoresist lamination over scratch.

[IMG039]
Dry Film Photoresist/Lamination (4 of 4)
Dry film photoresist lamination with defect.

[IMG040]
Drilling Process, Burr Formation (1 of 3)
Tools and materials.

[IMG041]
Drilling Process, Burr Formation (2 of 3)
Burr formation.

[IMG042]
Drilling Process, Burr Formation (3 of 3)
Closeup of burr.

[IMG043]
Multilayer Drilling (1 of 5)
Tools and materials.

[IMG044]
Multilayer Drilling (2 of 5)
Drilling operation.

[IMG045]
Multilayer Drilling (3 of 5)
Heat from drilling operation.

[IMG046]
Multilayer Drilling (4 of 5)
Epoxy smear covering internal lands.

[IMG047]
Multilayer Drilling (5 of 5)
Epoxy smear.

[IMG048]
Drill Stack (1 of 4)
Includes entry and back up materials.

[IMG049]
Drill Stack (2 of 4)
Wander.

[IMG050]
Drill Stack (3 of 4)
Contamination between panels.

[IMG051]
Drill Stack (4 of 4)
Burr - caused by contaminaant between panels.

[IMG052]
Drilled Hole (1 of 1)
Annular ring - drilled hole.

[IMG053]
Hot Air Leveling (1 of 2)
Hot air leveling.

[IMG054]
Hot Air Leveling (2 of 2)
Hot air leveling.

[IMG055]
Print and Etch Process (3-D) (1 of 8)
Drilled hole.

[IMG056]
Print and Etch Process (3-D) (2 of 8)
Photoresist application.

[IMG057]
Print and Etch Process (3-D) (3 of 8)
Phototool application.

[IMG058]
Print and Etch Process (3-D) (4 of 8)
Imaging.

[IMG059]
Print and Etch Process (3-D) (5 of 8)
Polymerized resist.

[IMG060]
Print and Etch Process (3-D) (6 of 8)
After developing.

[IMG061]
Print and Etch Process (3-D) (7 of 8)
After etching.

[IMG062]
Print and Etch Process (3-D) (8 of 8)
After stripping.

[IMG063]
Reduced Conductor Width - Caused by Underexposure (1 of 10)
Phototool applied.

[IMG064]
Reduced Conductor Width - Caused by Underexposure (2 of 10)
Imaging - underexposure.

[IMG065]
Reduced Conductor Width - Caused by Underexposure (3 of 10)
Underexposed photoresist.

[IMG066]
Reduced Conductor Width - Caused by Underexposure (4 of 10)
Developing chemistry.

[IMG067]
Reduced Conductor Width - Caused by Underexposure (5 of 10)
Partially developed.

[IMG068]
Reduced Conductor Width - Caused by Underexposure (6 of 10)
Fully developed - shows undercut of resist.

[IMG069]
Reduced Conductor Width - Caused by Underexposure (7 of 10)
Etching chemistry.

[IMG070]
Reduced Conductor Width - Caused by Underexposure (8 of 10)
Partially etched.

[IMG071]
Reduced Conductor Width - Caused by Underexposure (9 of 10)
Fully etched.

[IMG072]
Reduced Conductor Width - Caused by Underexposure (10 of 10)
Reduced conductor width - caused by underexposed photoresist.

[IMG073]
Reduced Conductor Width (1 of 7)
Fingerprint on phototool.

[IMG074]
Reduced Conductor Width (2 of 7)
Exposure reduction caused by fingerprint.

[IMG075]
Reduced Conductor Width (3 of 7)
Latent image in photoresist (partially exposed under fingerprint).

[IMG076]
Reduced Conductor Width (4 of 7)
Resist chemistry.

[IMG077]
Reduced Conductor Width (5 of 7)
Partially developed resist.

[IMG078]
Reduced Conductor Width (6 of 7)
Fully developed resist.

[IMG079]
Reduced Conductor Width (7 of 7)
Reduced conductor width caused by fingerprint on phototool.

[IMG080]
Soldermask Series (1 of 7)
Mask application.

[IMG081]
Soldermask Series (2 of 7)
Mask application.

[IMG082]
Soldermask Series (3 of 7)
Phototool positioning.

[IMG083]
Soldermask Series (4 of 7)
Phototool in position.

[IMG084]
Soldermask Series (5 of 7)
Imaging.

[IMG085]
Soldermask Series (6 of 7)
Phototool removal.

[IMG086]
Soldermask Series (7 of 7)
Developed solder mask.

[IMG087]
Mulitlayer Lamination - 6 Layer Board (1 of 3)
Layup of materials.

[IMG088]
Mulitlayer Lamination - 6 Layer Board (2 of 3)
Lamination process.

[IMG089]
Mulitlayer Lamination - 6 Layer Board (3 of 3)
Laminated Board - Ready for outerlayer processing.

[IMG090]
Innerlayer Defects (1 of 2)
Lifted resist.

[IMG091]
Innerlayer Defects (2 of 2)
Effect of lifted resist after etching.

[IMG092]
Innerlayer Defects (1 of 2)
Contamination under resist.

[IMG093]
Innerlayer Defects (2 of 2)
Effect of contamination under resist after etching.

[IMG094]
Innerlayer Defects (1 of 2)
Pinhole under resist.

[IMG095]
Innerlayer Defects (2 of 2)
Effect of pinhole under resist after etching.

[IMG096]
Innerlayer Defects (1 of 3)
Scratched copper under resist.

[IMG097]
Innerlayer Defects (2 of 3)
Effect of scratched copper under resist after etching.

[IMG098]
Innerlayer Defects (3 of 3)
Effect of scratched copper under resist after stripping.

[IMG099]
Mass Lamination - 4 Layer (1 of 2)
Layup.

[IMG100]
Mass Lamination - 4 Layer (1 of 2)
Showing layer count.