



# Facility Overview

March 2010

# Manufacturing Locations & Qualifications

7 Operating Facilities, net of Toronto integration  
All ISO 9001:2000 and AS9100 Registered  
1 Central Service Center  
Distributed Sales Resources

## Milpitas, CA

- High Tech Proto & Pre-Production
- ISO 9001:2008
- 62,000 sq ft
- AS 9100B
- MIL-PRF-55110
- MIL-PRF-31032 (in process)

## Anaheim, CA

- High Tech Proto
- 76,000 mfg sq ft & Corp offices
- ISO 9001:2008
- AS 9100B
- MIL-PRF-55110
- MIL-PRF-31032

## Denver, CO

- Mil/Aero/HDC
- 28,000 sq ft
- MIL-PRF-31032
- MIL-PRF-55110
- AS 9100B
- Nadcap

## Cleveland, OH

- Mil/Aero/Rigid Flex, Flex and Rigid
- 40,000 sq ft
- MIL-PRF-31032
- MIL-PRF-55110
- MIL-PRF-50884
- AS 9100B
- Nadcap

## Richardson, TX

- Central Pre-Cam, DFM
- Data Center

## N. Jackson, OH

- Mil/Aero/HDC
- 77,000 sq ft
- MIL-PRF-31032
- MIL-PRF-55110
- MIL-PRF-50884
- AS 9100B
- Nadcap

## Toronto, Canada

### McNicoll

- Standard Tech Proto
- 41,000 sq ft
- ISO 9001:2008
- AS 9100B
- ISO 13485

## Toronto, Canada

### Sheppard

- High Tech Proto, QTA and mid volume production
- 93,000 sq ft
- MIL-PRF-31032
- MIL-PRF-55110
- AS9100B
- ISO 13485

## Sterling, VA

- High Tech Proto & Pre-Production
- 101,000 sq ft
- ISO 9001-2008
- MIL-PRF-31032
- MIL-PRF-55110
- AS 9100B
- Nadcap

# DDi AH

# Anaheim, California

DDi's AH Facility specializes in High Technology, Prototype and Quick Turn multilayer PCB's. The AH facility is engaged in process development projects with several key customers and suppliers.



### Key Statistics:

- 90K sq ft facility
- 4500 cores/wk
- 90 jobs/wk
- 11.2 layer avg.
- 315 people
- 750 panels/wk
- 50 new tools/wk
- 6.3 panels/lot avg.

### Certifications & Qualifications:

- ISO 9001:2008
- UL Listed
- MIL-PRF-31032
- Bellcore Compliant
- MIL-PRF-55110
- AS9100B

### Key Contact

Plant Manager: Ruben Zepeda  
Phone: 714-688-7200  
Email: rzepeda@ddiglobal.com

### Major Market Segments:

- Telecom
- High-End Computing
- Consumer Electronics
- Aerospace
- Medical
- Wireless Data Equipment & Base Stations
- Military

### Engineering Services:

- New Product Development
- Product Engineering
- Quality Engineering
- DFM Analysis
- Process Engineering
- Failure Analysis

### Key Technical Capabilities:

- Up to 40 layer
- Blind & Buried Vias
- Sequential Lamination
- O/L L&S 0.003"/0.003"
- I/L L&S 0.0025"/0.0025"
- Hybrid Constructions
- Conductive Via Fill
- Thin Core Processing
- Cavity
- 0.005" - 0.325" thick
- *FLAT-WRAP™* Technology, Next Gen SMV™
- 0.004" Micro Vias
- Stacked Microvias
- LDI imaging
- Embedded Resistors / Capacitance
- LPI Legend
- Flat pad (via in pad)
- Edge Castellations

### Surface Finishes:

- HASL
- Immersion Silver
- Immersion Tin
- Full Body Hard Gold
- OSP (Entek HT)
- Immersion Gold
- Electroless Gold (bondable)
- Selective Hard Gold

### Materials:

- >27 material types, Polyimide, Ceramic, Teflon, BT, etc.
- High temperature (FR4) – Lead Free options
- High Frequency (GETEK, Isola 408, Nelco 4000-13, RO4350B)
- STABLCOR® (Epoxy and Polyimide versions)
- Halogen Free
- Copper Core



# DDi

# Cleveland, Ohio

DDi's Cleveland facility specializes in Rigid-Flex, Flex and Rigid product with specific focus on Military / Aerospace markets, and has Value Add Connector Assembly capabilities.



### Key Statistics:

40k sq ft facility	65 people
750 cores / wk	150 panels / month
8 layer average	20 new tools / month
8 panel lot average	

### Certifications & Qualifications:

MIL-PRF-31032, /1,/2,/3,/4; MIL-PRF-55110;  
MIL-P-50884, ISO 9001, AS9100B; UL94V-0 for Rigid-Flex/Flex; AS9100B, NADCAP

### Key Contact

V.P. Operations: Robert J. Owen  
Phone: 330-572-3400  
Email: rowen@ddiglobal.com

### Major Market Segments:

- Military
- High Reliability Commercial
- Aerospace
- Medical (Emerging)

### Engineering Services:

- New Product Development
- Product Engineering
- Quality Engineering
- DFM Analysis
- Process Engineering
- Failure Analysis

### Key Technical Capabilities:

Up to 30 layers	0.010" – 0.175" thick
Rigid	Rigid-flex
Flex	Mixed Material Constructions
Metal Core Boards	Bonded Heat Sinks
O/L LWS 0.0035"/0.004"	I/L LWS 0.003"/0.003"
Value Add Connector Assembly	
Heavy Copper Layers up to 3 oz.	

### Surface Finishes:

HASL, Full Body Hard Gold, Selective Hard Gold, Edge Plating, ENIG

### Materials:

High temperature FR4, Polyimide, Kapton, Rogers, Teflon  
Thermagon, Lead Free & RoHS Compliant



# DDi

# Denver, Colorado

DDi's Denver facility specializes in high reliability / high mix prototype, quick turn and low volume production with a deep military / aerospace heritage.



### Key Statistics:

28k sq ft facility	100 people
550 cores / wk	750 panels / month
8 layer average	125 new tools / month
2 panel lot average	

### Certifications & Qualifications:

MIL-PRF-31032, MIL-P-50884, ISO 9001:2000;  
AS9100B, NADCAP

### Key Contact

V.P. Operations: Craig Barrett  
Phone: 303-904-6148  
Email: cbarrett@ddiglobal.com

### Major Market Segments:

- Military
- High Reliability / High Mix
- Industrial
- Aerospace
- Medical
- Commercial QTA

### Engineering Services:

- New Product Development
- Product Engineering
- Quality Engineering
- DFM Analysis
- Process Engineering
- Failure Analysis

### Key Technical Capabilities:

Up to 32 layers	0.005" – 0.250" thick
Rigid	IPC 6012 Class 3
Sequential Lamination	Via Fill
Copper Core Boards up to 6 oz	ITAR Compliant
O/L LWS 0.0035"/0.004"	I/L LWS 0.003"/0.003"

### Surface Finishes:

HASL, Full Body Hard Gold, Wire Bond Gold, Edge Plating,  
ENIG, Immersion Silver, Immersion Tin, Reflow Sn/Pb

### Materials:

Polyimide, 370HR, Rogers, Arlon, Taconic, Nelco 4000-13, BT,  
Thermagon, ZBC, Lead Free & RoHS Compliant



# DDi SV Milpitas, California

Our Silicon Valley (SV) Facility is a High Technology Multilayer Printed Circuit Board Fabricator focused on Quality and Engineering for Quick Turn Prototypes & Production Requirements.



## Key Statistics:

- 62K sq ft facility
- 189 people
- 7200 cores/wk
- 1500 panels/wk
- 175 jobs/wk
- 75 new tools/wk
- 9.2 avg. layer
- 8 panel avg. lot

## Certifications & Qualifications:

- ISO 9001:2008
- MIL-PRF-55110
- UL Listed
- Telcordia GR-78-CORE
- MIL-PRF-31032 in process
- AS-9100B

## Key Contact:

Plant Manager: Victor Hemingway  
Phone: 408-719-4042  
Email: vhemingway@ddiglobal.com

## Major Market Segments:

- Telecom
- Medical
- High-End Computing
- Wireless Data Equipment & Base Stations
- Consumer Electronics
- Military
- Semiconductor (ATE & Burn-In)
- Aerospace

## Engineering Services:

- New Product Development
- Product Engineering
- Quality Engineering
- DFM Analysis
- Process Engineering
- Failure Analysis

## Key Technical Capabilities:

- Up to 60 layers
- Blind & Buried Vias
- Sequential Lamination
- O/L LWS 0.002" / 0.003"
- I/L LWS 0.002" / 0.002"
- Mixed Material Constructions
- 0.012" - 0.250" thick
- Buried Capacitance
- 0.004" Micro Vias
- Thick Backpanels
- Thick Copper Layers
- Optical drilling/Routing

## Surface Finishes:

HASL, OSP (Entek HT), Immersion Silver, Immersion Gold, Full Body Hard Gold, Selective Hard Gold, Edge Plating, Lead Free HASL

## Materials:

>27 material types, Polyimide, Ceramic, Teflon etc.  
High temperature (FR4)  
High Frequency (GETEK, Isola 408, Nelco 4000-13 & 13EP, RO4350B)  
CAF Resistant  
Lead Free and RoHS compliant

# DDi OH

# North Jackson, Ohio

DDi's Ohio facility (Sovereign Circuits) specializes in the high reliability commercial and very high end military technology markets. Offering medium volume and quick turn prototypes for flex, rigid-flex and rigid constructions, DDi Ohio proudly supports some of our nations most critical defense programs!



## Key Statistics:

- 75K sq ft facility
- 2000 cores/wk
- 100 jobs/wk
- 8 layer avg.
- 143 people
- 625 panels/wk
- 50 new tools/wk
- 10 panels/lot avg.

## Certifications & Qualifications:

MIL-PRF-31032, /1,/2,/3,/4; MIL-PRF-55110; MIL-P-50884  
ISO 9001:2000; Weapons Spec; NASA Flight; UL Listed  
AS9100B, NADCAP

## Key Contact

V.P. Operations: Michael Frank  
Phone: 330-538-3900  
Email: mfrank@ddiglobal.com

## Major Market Segments:

- Military
- High Reliability Commercial
- Aerospace

## Engineering Services:

- New Product Development
- Product Engineering
- Quality Engineering
- DFM Analysis
- Process Engineering
- Failure Analysis

## Key Technical Capabilities:

- Up to 30 layers
- Rigid
- Flex
- Metal Core Boards
- O/L LWS 0.003.5"/0.004"
- I/L LWS 0.003"/0.003"
- 0.010" - 0.250" thick
- Rigid-flex
- Mixed Material Constructions
- Bonded heat sinks
- Thick Backpanels
- Heavy Copper Layers

## Surface Finishes:

HASL; Tin Lead Fuse; Immersion Silver; Immersion Gold; Full Body Hard Gold; Nickel/ Palladium / Gold; Selective Hard Gold; Edge Plating

## Materials:

- High temperature FR4
- Polyimide
- Rogers
- Teflon
- Thermagon
- Lead Free & RoHS Compliant



# DDi VA

# Sterling, Virginia

DDi's VA Facility specializes in Quick Turn manufacturing of high technology multilayer PCB's, with a specific focus on military hybrid constructions, via fill, and high performance materials. VA's technologically advanced equipment set is well suited for high complexity, high layer count production in quantities from one to one million.



### Key Statistics:

- 101K sq ft facility
- 20,000 cores/wk
- 150 jobs/wk
- 12.5 avg. layer count
- 233 people
- 5000 panels/wk
- 25 new tools/wk
- 15 panel avg. lot

### Certifications & Qualifications:

- MIL-PRF-31032
- ISO 9001:2008
- UL Listed
- AS 9100B
- Telcordia GR-78-CORE Complaint
- TL 9000
- MIL-PRF-55110

### Key Contact:

- Plant Manager: John Chelberg
- Phone: 703-652-2265
- Email: jchelberg@ddiglobal.com

### Major Market Segments:

- Telecom and Test
- High-End Computing
- Wireless Data Equipment
- Military / Aerospace
- Medical
- Automotive
- Base Stations
- Homeland Security

### Engineering Services:

- New Product Development
- Product Engineering
- Quality Engineering
- DFM Analysis
- Process Engineering
- Failure Analysis

### Key Technical Capabilities:

- Up to 50 layers
- Blind & Buried Vias
- Sequential Lamination
- O/L LWS 0.003"/0.004"
- I/L LWS 0.0025"/0.0025"
- Embedded Resistors
- Laser Drilling
- Stacked Micro Vias (SMV)
- 0.012" - 0.250" panel thickness
- Buried Capacitance
- 0.004" Micro Vias
- Back panels / Back Drilling
- Heavy Copper Wt. Layers
- Mixed Material Constructions
- Via Fill and Planarization
- FLAT-WRAP™ Technology

### Surface Finishes:

HASL, OSP (Entek HT), Immersion Silver, Immersion Gold, Full Body Hard Gold, Selective Hard Gold, Wire Bondable Gold, Edge Plating

### Materials:

- > 27 material types
- High Temperature
- High Frequency
- CAF Resistant
- Hybrid combinations
- Lead Free and RoHS compliant



# DDi

# Toronto, Ontario (Sheppard)

DDi's Toronto facility specializes in prototype, quick turn and mid volume production with specific focus on high mix / low volume.



### Key Statistics:

93k sq ft facility	254 people
7,500 cores / wk	9500 panels / month
8 layer average	160 new tools / month
8 panel lot average	

### Certifications & Qualifications:

MIL-PRF-31032, MIL-PRF-55110, ISO 9001, AS9100B, ISO 13845, CGP, UL

### Key Contact

V.P. Operations: Jon Perreira  
Phone: 416-283-4888  
Email: [jpereira@ddiglobal.com](mailto:jpereira@ddiglobal.com)

### Major Market Segments:

- Aerospace
- Consumer Electronics
- Instrumentation
- Military
- Communications
- Industrial Electronics
- Medical

### Engineering Services:

- New Product Development
- Product Engineering
- Quality Engineering
- DFM Analysis
- Process Engineering
- Failure Analysis

### Key Technical Capabilities:

Up to 36 layers	0.010" – 0.250" thick
HDI/Microvia	Max Panel size 21" x 24"
Via in Pad	Via Fill
IPC 6012 Class 2 and 3	Buried & Blind vias
O/L LWS 0.0035"/ 0.0035"	I/L LWS 0.003"/ 0.003"

### Surface Finishes:

HASL, ENEPIG, ENIG, Immersion Sn, Hard & Wire bondable Gold, OSP

### Materials:

Polyimide, 370HR, Rogers, Taconic, Nelco 4000-13, BT, Arlon  
Lead Free assembly compatible, RoHS & Reach Compliant



# DDi TO

# Toronto, ON

**DDi Toronto facility specializes in medium technology / medium volume quick turn prototypes.**



## Key Statistics

41K sq ft facility	255 people
6000 cores / week	3000 panels / week
250 jobs / week	100 new tools / week
6 layer average	12 panels/lot average

## Certifications & Qualifications

ISO 9001:2008	ISO 13845
AS9100B	UL Listed

## Key Contact

V.P.	Jon Pereira
Phone:	416-283-4888
Email:	jpereira@ddiglobal.com

## Major Market Segments:

- Telecom
- High-End Computing
- Wireless Data Equipment & Base Stations
- Medical
- Automotive

## Engineering Services:

- New Product Development
- Product Engineering
- Quality Engineering
- DFM Analysis
- Process Engineering
- Failure Analysis

## Key Technical Capabilities:

- Up to 18 layers
- O/L LWS 0.003"/0.003"
- I/L LWS 0.003"/0.003"
- Mixed Material Constructions
- Double Sided Flex Circuits
- 0.010" - 0.250" thick
- Thick Backpanels
- Thick Copper Layers

## Surface Finishes:

HASL, OSP (Entek HT), Immersion Silver, Immersion Gold, Full Body Hard Gold, Selective Hard Gold, Wire Bondable Gold, Edge Plating

## Materials:

>15 material types, High temperature  
High Frequency (GETEK, Isola 408, Nelco 4000-13, RO4350B)  
Lead Free and RoHS compliant

