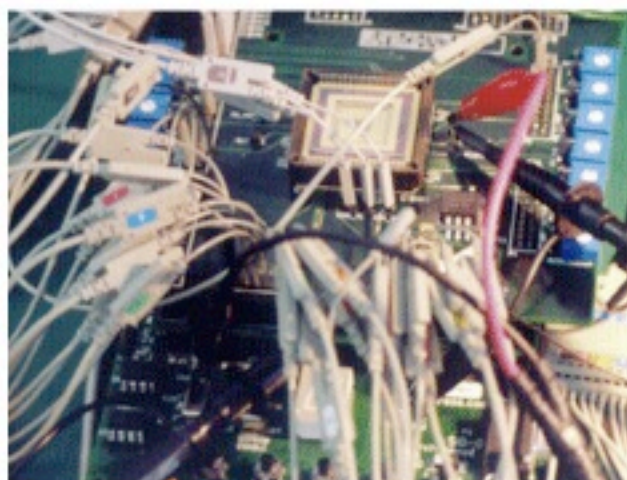


# Introduction to A System Design Team



In Association with Vivace Semiconductor (China) & General Circuits (USA)



# Design and Manufacturing for Customers

## Offering:

- Contract out clients' sophisticated digital system development, along with precision analog and mixed-signal integration
- Provide the best PCB and System engineering solutions
- Take full responsibility to manage contracted projects and manufacturing subcontracts

## Skills:

- Familiar with industry standards, MCU, processor, DSP, bus interfaces, memory access, IO peripherals and application SW
- Capable in creative designs, optimizing system integrations and component selections, with emphasis on performance & BOM
- Practical solutions to IC interface problems with "glue logic", built to fulfill the need of IC and system prototyping

## Design-Manufacturing Chain:

- Work for clients to assure client-vendor team interface, progress alignment and contingency
- Interface and manage PCB manufacturer and assembly houses
- Save costs, time and inter-team management overhead
- Give component developer a peace in mind of system capabilities

# Table of Contents

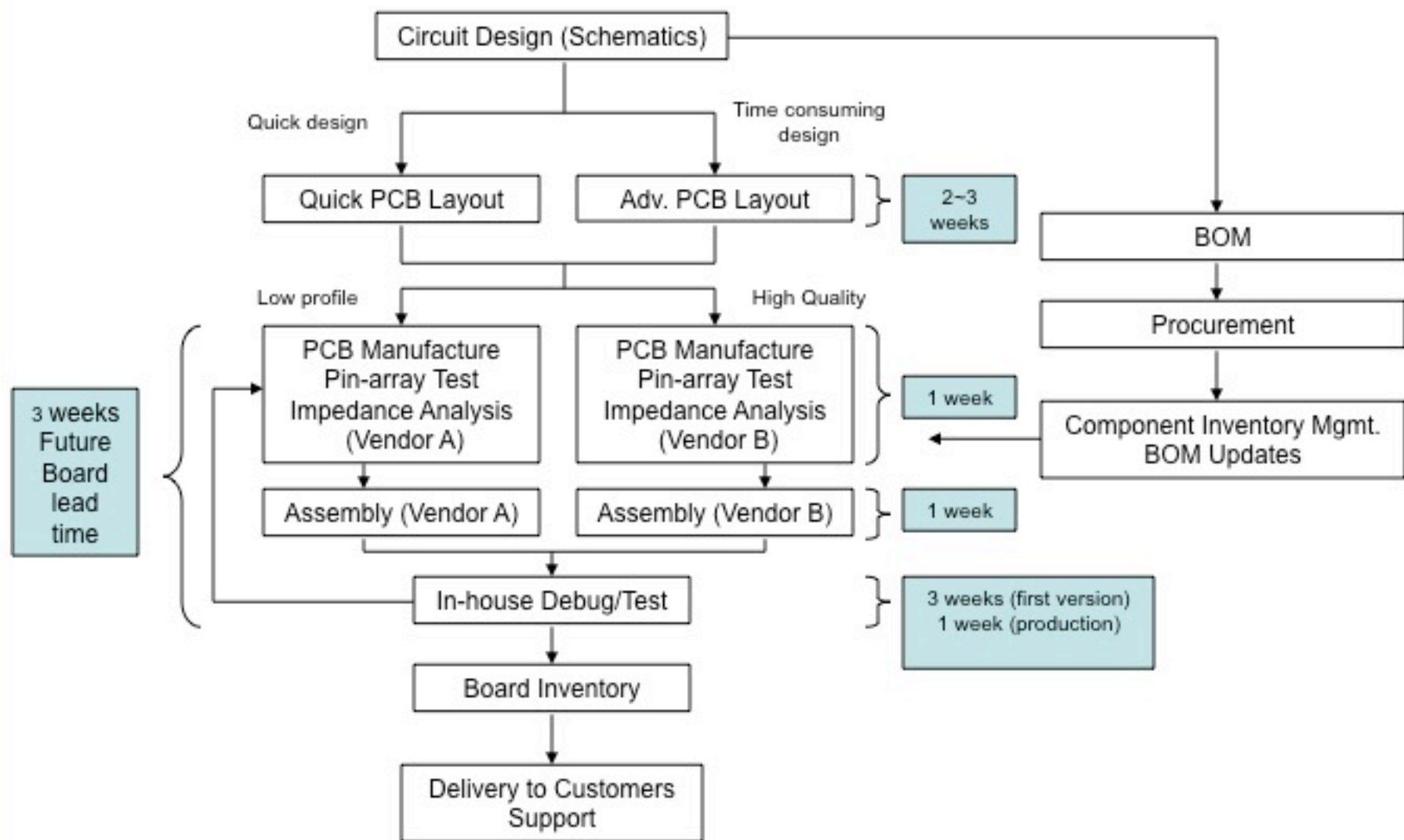
- Team overview
- Design Flow
- Design Tools
- Lab Equipments
- System/PCB Design Capability
- System Design Samples
- Business in Market Places

# Team overview

- Team members
  - **MG:** Team Leader, 9 years Hardware, 10+ years Software, 9 years Embedded software
  - **JN:** 10+ years Hardware Circuit Design, Advanced PCB Design
  - **VCh:** 5 years. System Circuit Design, PCB Design, Embedded software, FPGA Logic Design Hardware test
  - **MZ:** 9 years. System Circuit Design, Mechanical Design, Embedded software
  - **YW:** 5 years, Advanced PCB Design
  - **JH:** 3 year. System Circuit Design, PCB Design, Hardware test, Inventory Management, Procurement

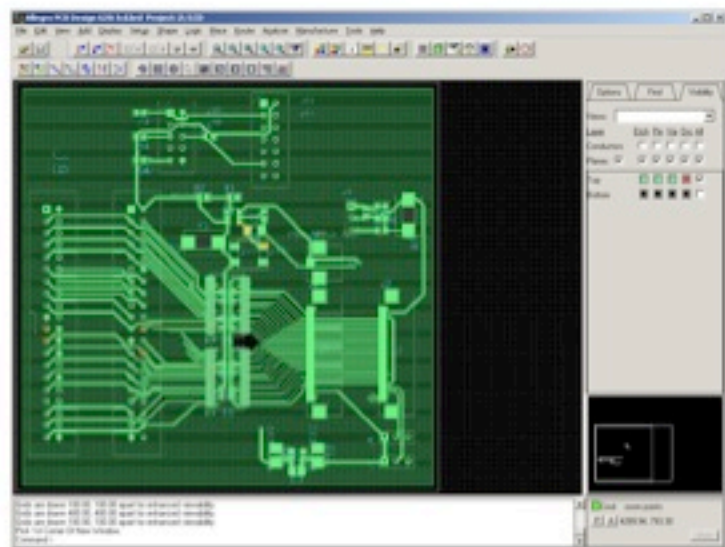
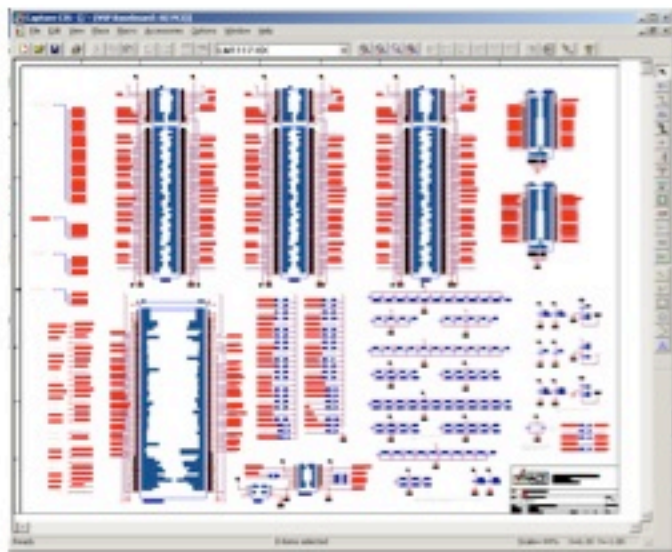
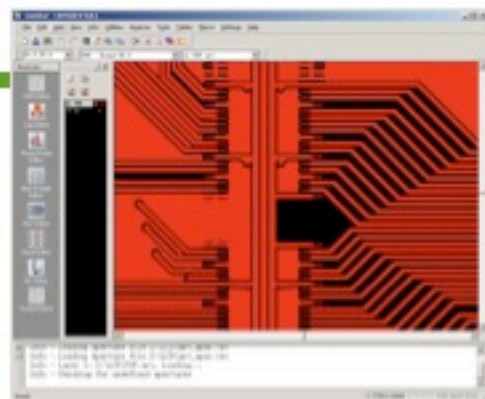


# Design Flow



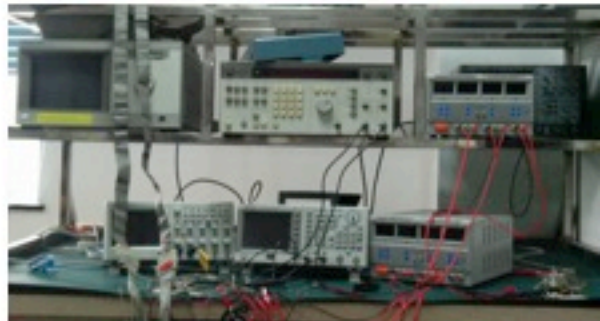
# Design Tools

- Cadence Allegro SPB 15.7
  - Orcad Schematic Capture 10.7
  - Allegro PCB Editor
  - Spectra PCB Autorouter
  - Allegro PCB SI
- DownStream CAM350 / Gerbtool Gerber file inspection tools
- Mentor Modelsim for FPGA programming and verification
- Altera Quartus II tools for Altera FPGA
- Xilinx ISE tools for Xilinx FPGA



# Lab Instrumentation

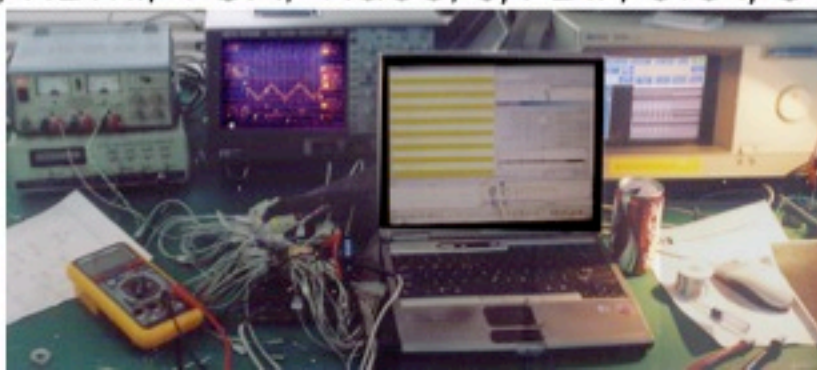
- Power Supply
  - Huayi HY3003M-3 3-ch 3A Digital
  - Tektronics CPS250 3-ch 3A Analog
- Oscillator
  - Tektronics DPO4054 500MHz 4-ch
  - Tektronics TDS2024B 200MHz 4-ch
- Logic Analyzer
  - 2 x Agilent 16700A 667MHz 204-ch
- Function Generator/Synthesizer
  - HP 3326A 20MHz 2-ch
- Digital Multimeter
  - Agilent 34405A 5 1/2 Digits
- Programmer
  - Xeltek SUPERPRO 580U Universal Programmer
  - Cypress Clock Chip Programmer
- JTAG Emulator
  - Abatron BDI2000 Universal JTAG emulator with ARM / PowerPC Support





## System Design Capability

- Broad range of SoC based complex system
  - MIPS (IDT/PMC/ICT)
  - ARM (Atmel/Samsung/Marvel),
  - PowerPC (Freescale)
  - OpenRISC (Vivace)
- Complex custom FPGA system
  - Altera Stratix II based, multiple FPGA interconnect
- Most versatile connectivity
  - SysAD, PCI, PCIe, I<sup>2</sup>C, I<sup>2</sup>S, AC'97, LVDS, PATA, SATA, DDR/DDR-2, etc. internal bus
  - Serial, USB, HDMI, VGA, Video, S/PDIF, etc I/O connection

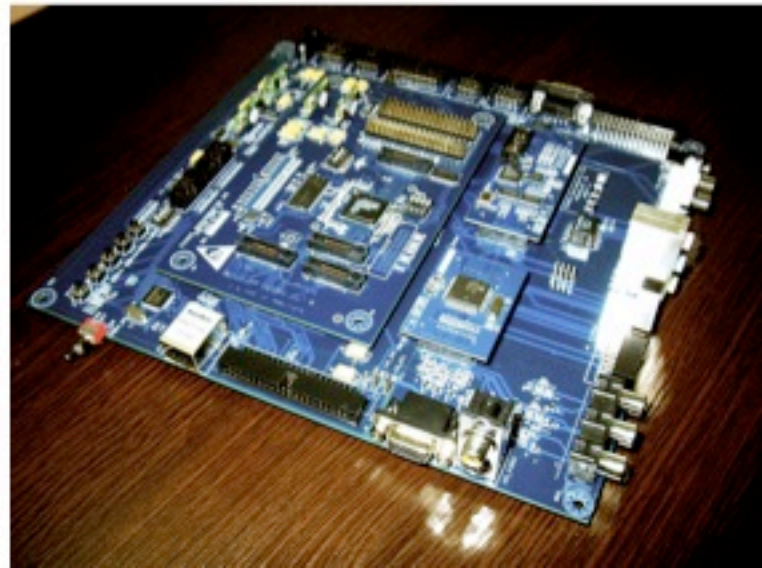






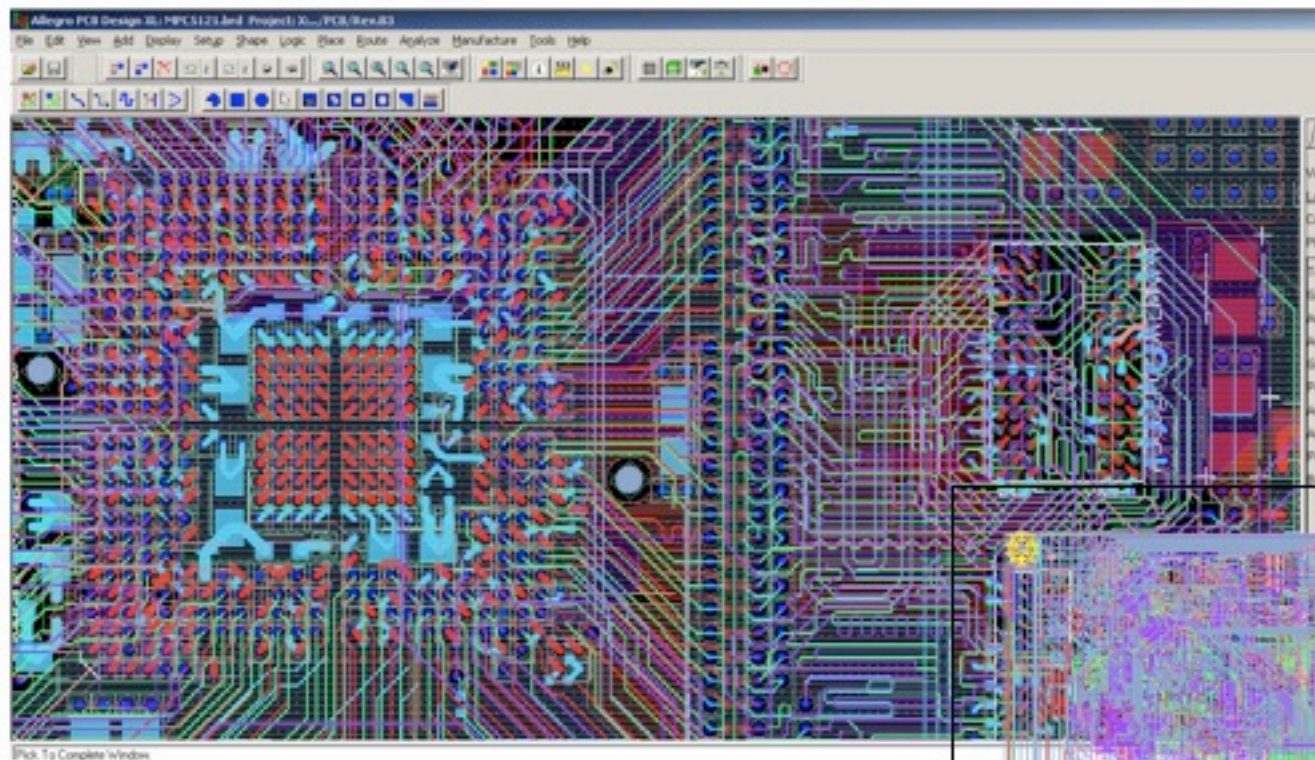
## PCB Design Capability

- 20+ Layers Advanced PCB manual layout
- Multiple 1500+ Pins BGAs interconnect with high speed LVDS
- 400MHz+ DDR-2 Memory layout and SI simulation
- Gerber level automatic inspection/check

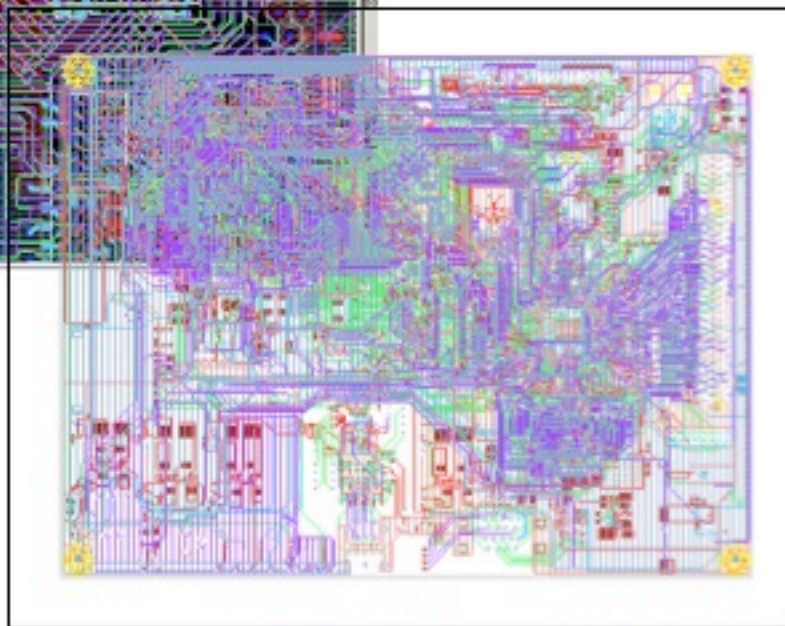




## System Design Sample (1)

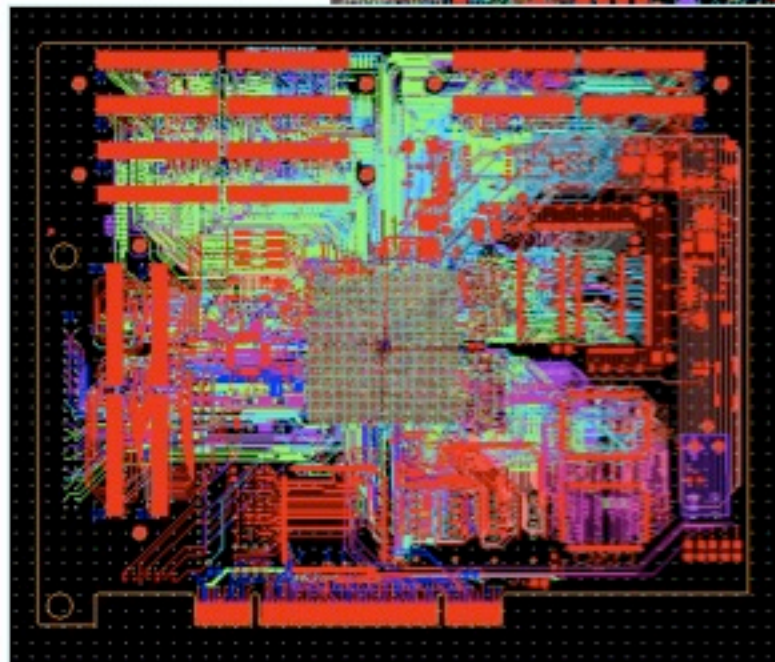
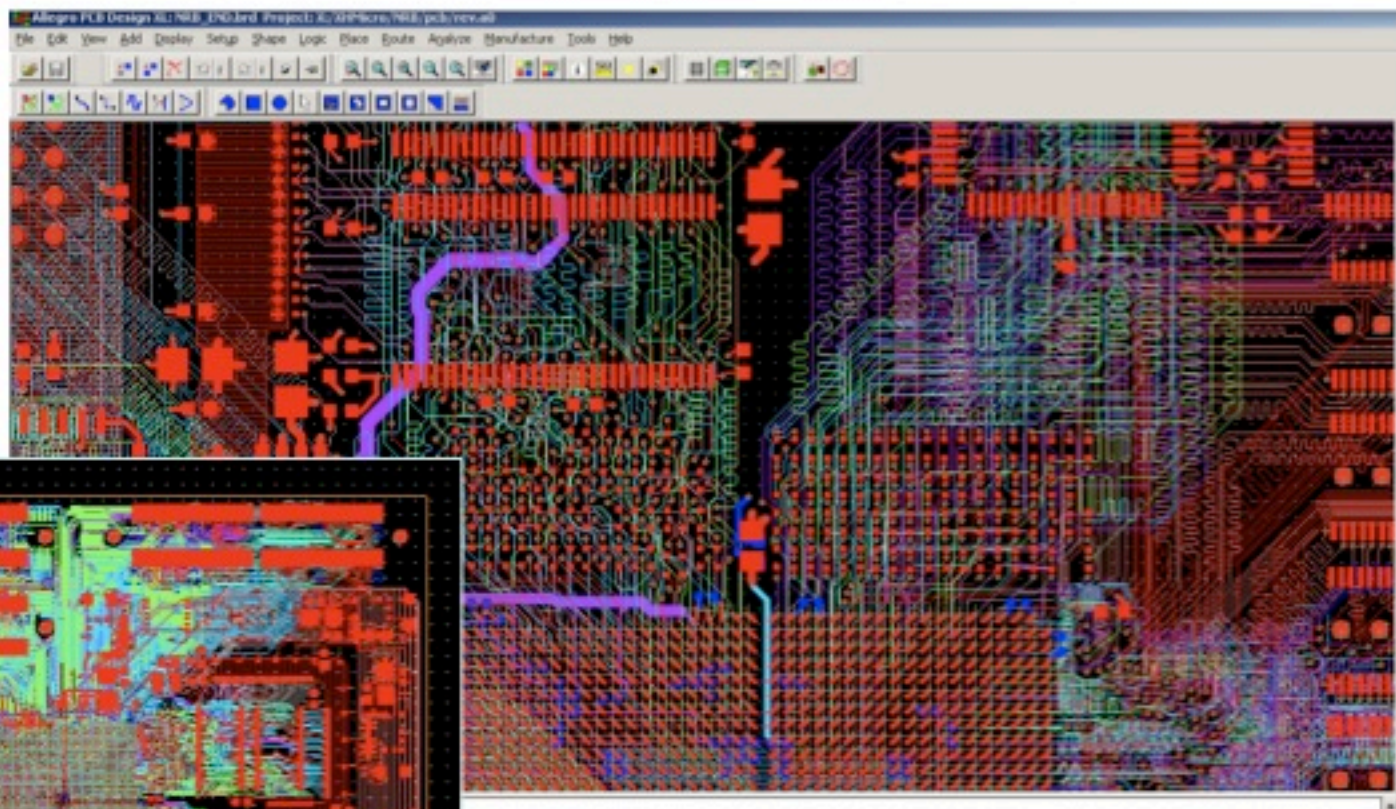


- Freescale MPC5121 SoC System
- Dual processor, DDR-2, USB 2.0
- 10 Layers
- Schem-to-gerber with BOM optimization 8 man-weeks





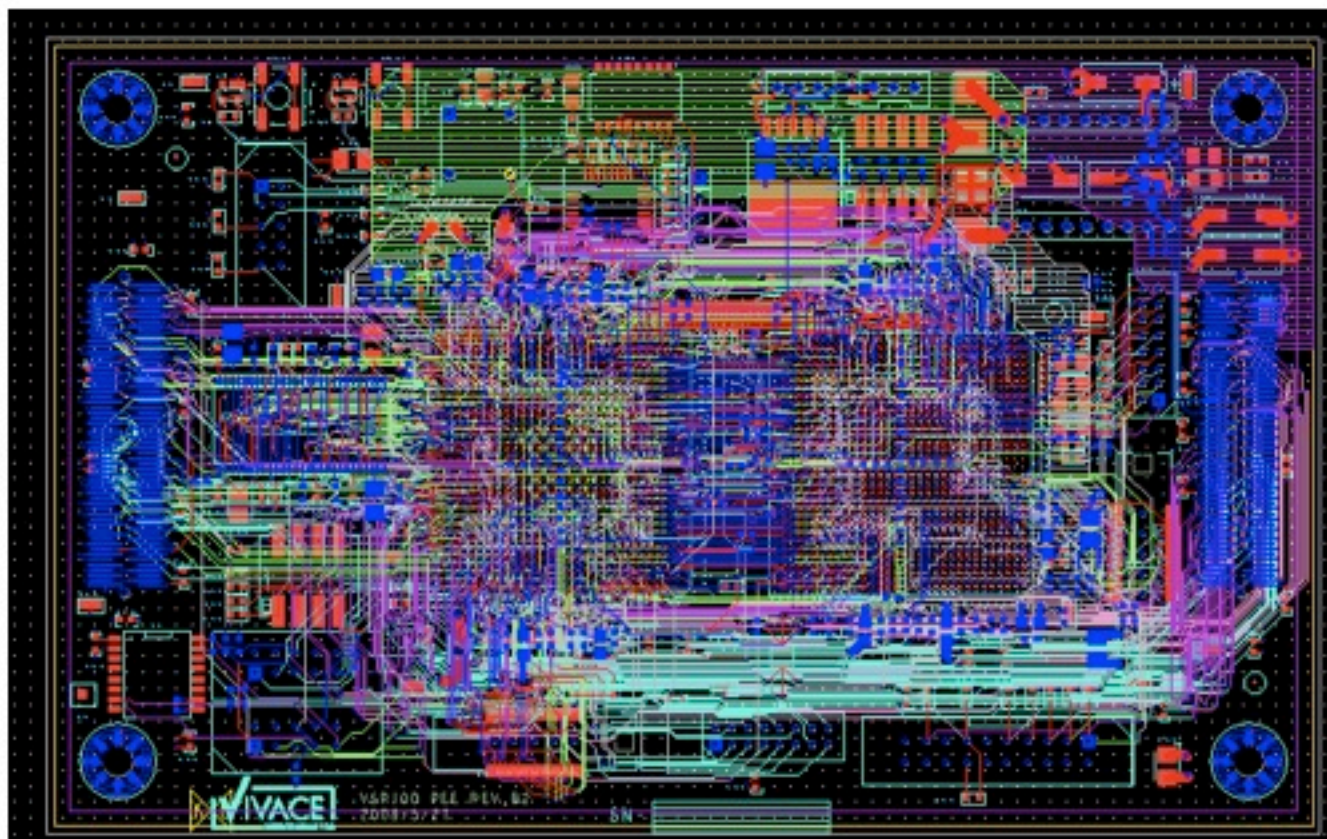
## System Design Sample (2)



- Altera FPGA PCI System
- DDR, High speed
- 18 Layers
- Schem-to-gerber with BOM optimization 6 man-weeks



## System Design Sample (3)



- Altera Two FPGA System
- DDR, High speed
- 14 Layers
- Schem-to-gerber with BOM optimization 6 man-weeks

# Applications

## Custom Designs

- Processor Dev Sys: XHMicro, prototype of Silicon IP products, multi-core configurable DSP FPGA dev sys & analog & mixed signal IC test fixture
- Media SoC applications: Vivace, multi-core DSP + RISC SoC prototyping, test fixture, FPGA verification sys, application dev sys
- Lab Instrumentation: General Circuits, experimental fixtures for dedicated imager sys

## Customer Applications

- FPGA-based general-purpose dev sys for Univ & R&D lab
- Microprocessor mother boards for State R&D
- Media application systems for commercial IC developers
- PXI/VXI instrumentation modules for space and automated test applications
- Co-development with consumer product developers
- Co-development with industrial design artist for high-tech gadgets, low-BOM and localized low-cost productions



# A well-connected Business

## Upstream:

Product Co-development  
Interface w/ **design-chain**

- Product concepts
- Industrial design team
- Reductions: design costs, size, complexity, BOM
- Connections and locations of design-chain resources
- Distributions: showcases, marketing, reps, logistics, product /technology air war

## Down Stream:

Hosting and Mastering customer design projects:

Interfaces w/ **engg-mfg chain**

- Small-quantity procurement, inventory and logistics,
- BOM optimization based on component localization
- PCB manufacturing
- PCB & sys assembly
- Test & qualifications
- Customer team engineering





## A Power Monitoring Product Series Demonstrating Formation of A New Product Line

### Upstream:

Design Park, Beijing, China



- Product Concept Design
- Industrial Design

Vango, Hangzhou, China



- SoC Component Supplies
- Application Solutions
- Sys Prototype

Sys Team, Beijing, China



- Sys Engineering Technologies
- SoC, FPGA, PCB, Design & SW

Matrix Systems, Beijing, China



- System Development Contracts
- System Manufacturing Contracts
- SoC & System Prototyping
- Business Development

### Down Stream:

Ampro Systems, Fremont, CA, USA

- PCB Prototyping
- PCB & Sys. Assembly
- System Test & UL Qualification
- N. American Dist. & Logistics

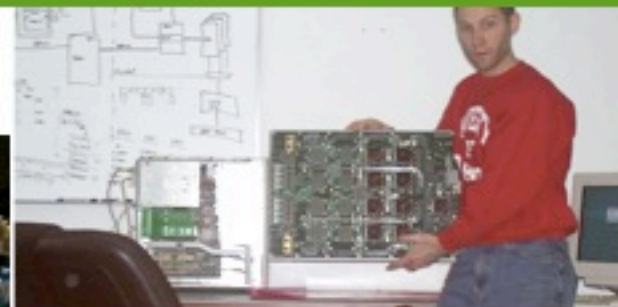


ConsoliTech Sys, Taipei, Shenzhen

- Sys Manufacturing
- TW & China Dist. & Logistics

Products Like These





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