

**John Medina**

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## **Qualifications**

I have over thirty years of professional experience as a Senior level PCB/Packaging Layout Designer. Through my work experience I have adopted a clear understanding of high-speed interconnect performance that is essential for layout of PCB digital designs that must work well with the challenges posed by the ever-increasing operating speeds of today's microprocessors.

Currently I have remained focused in the area of high-speed PCB and Package layout with signal and power integrity verification using state of the art CAD tools for layout and simulation. Utilization of leading CAD tools to implement, verify, and correctly integrate all electrical and physical constraints in order to deliver successful complex high speed, flex and rigid flex designs. I have experience with complete layout, placement, route and simulations on complex high density interconnect PCB designs that include flex and rigid flex designs and experience defining routing strategies for high-speed PCB designs for companies such as: Apple, Alcatel, Northrop Grumman, Hewlett Packard, Agilent, Cisco, Calix, and Samsung.

My experience has been performing high speed PCB layouts combined with signal and power integrity analysis including recent simulations involving measuring impedance over frequency using Sigrity's Power SI tool and timing and noise simulations using Hyperlynx.

## **Objectives**

To provide excellent PCB design layout on high-speed and flex and rigid flex designs with signal and power integrity first order analysis skills to accomplish state of the art PCB and package designs. I enjoy being on the forefront of technology and want to continue using my knowledge of layout and simulation techniques to deliver high quality PCB products and training. I am interested in working with customers to identify problem areas in high speed designs and offer solutions through tools and methodologies that will provide the customer with scalable reuse capability.

## **Technical Skills**

I have completed many PCB design of complex high-speed mixed technology flex and rigid flex circuit boards, including HDI designs while providing power and signal Integrity Verification and PCB design implementation. I have developed effective high speed PCB Design Process flows for many companies. Training of high speed design practices including the following topics: Crosstalk and non-ideal transmission line effects on signal quality and timings and how to find and fix these problems using existing CAD tool simulations and applying to physical layouts.

## **Software/Hardware Experience**

Xpedition Enterprise and Cadence Allegro 16.x/17.2/Concept, Altium Designer layout tools. Sigrity Speed 2000/ Power SI/Mentor Graphics Xpedition, HL-DRC, Interconnectix tools/ICX and Hyperlynx Power and Signal Integrity tools.

## **Professional Experience:**

### **Sandia National Labs**

#### **Product Design Engineer May 2018**

PCB design of telemetry boards for Nuclear weapons, utilizing flex and rigid flex designs. Taught Schematic entry and layout techniques and best practices to engineers and layout personnel. Introduced streamline PCB processes and post process improvements thru the use of HL-DRC, Valor and Automation support.

### **Glenair**

#### **PCB Design Staff – Ongoing Contractor**

Designing of Raytheon designs with Glenair connectors. Help develop PLM solution involving Nexus/Altium, Xpedition and PADS. Working with Ultra-Librarian to develop common central libraries that can be managed with Access or SQL database integrated with a PLM system.

### **Mentor Graphics**

#### **PCB/Packaging Design Application Engineer Jan 2015 – May 2018**

Support PCB and Packaging designers for Enterprise solutions group. Main accounts are Intel, Qualcomm, Microsoft, Altera and Nvidia. Supported XPI and Xtreme PCB products along with Xpedition PCB layout. I supported Multiple-module SIP designs at Qualcomm delivered to GM, with extensive use and training of Xpedition Package Integrator and Xpedition Substrate integrator, also supported 3d Stack and Calibre use. I have some VBS scripting experience.

### **DSSD/EMC**

#### **Senior PCB Designer September 2014 – Jan 2015**

PCB design of cloud computer hardware. Also provided Sigrity Power DC simulations. Designed and simulated dense PCB designs and implemented power dc findings from simulations.

#### **Intel - Physical Package Designer March 2012 - June 2012 contractor, June 2012 until September 2014**

Working as a physical package designer; designing state of the art server chips; flip chip, soc and interposer designs. Very dense package designs with many constraints and physical limitations. Also providing training to server group and responsible for creating new BKM's for process and tools.

## **Shocking Technology**

**May 2010 – June 2012**

### **Lead PCB design using Expedition and Cadence**

Completing reference smart Cell phone designs for many large cell phone makers, including LG, Sony-Ericsson, Sierra Wireless, and others. Designing many variations of PCB Design of high-end baseband driven smart mobile cell phones using any layer via 6-10 layer PCB design. Also, I introduced new pcb design technologies while driving CAD companies to move into this new innovative pcb technology and process being introduced by Shocking Technologies.

## **High Speed Design Services, LLC**

**November 2008 until June 2013**

Owner and Operator of top-level PCB/SI design services, with 6-8 top level pcb designers on staff. Servicing customers including Agilent, Sandia Labs, Cisco, Calix, General Dynamics, Samsung, and Shocking Technologies.

Agilent/HSDS, LLC – Santa Rosa 2008

Contracted on-site providing pcb support and training including ICX, Expedition and CES. Completed several PCB designs and help develop overall processes.

## **Northrop Grumman      November 2008 to April 2010**

PCB SI/LAYOUT Engineer/PCB Engineering Technical Staff/Space Park

CAD TOOLS USED: MentorRE, Expedition, Sigrity (Power SI) and ICX

Responsible for managing and leading designers to design complex satellite PCB layouts, simulations and further development of high speed designs.

Completed many complex PCB designs layouts and preformed timing and frequency analysis.

Conducted trade study and presented report to upper management of the advantages against competitors of Power SI for PDS simulations

Used Power SI to help define threshold of impedance across operating frequencies and thus convinced management to purchase Power SI

## **MetaRAM    July 2007 to November 2008**

Startup company creating ddr2 and ddr3 high capacity 8G and 16G dimm designs

Senior Technical Staff – PCB Design Engineer and Lead.

Created cad environment, trained/converted engineers on Mentor tool flow and developed infrastructure to support schematics and layout using Mentor tools, CES and Expedition.

Designing multi lamination high density HDI dimm designs using .5mm pitch bga's. Involved in packaging and completion of pcb designs using DX-Designer – Expedition – CES work flow.

Company went out of business.

Title: Lead PCB designer using Expedition

### **Apple Computer Cupertino      March 2007- July 2007**

PCB SI/LAYOUT Engineer and PCB Engineering Technical Consultant

CAD TOOLS USED: Mentor, Expedition, Allegro Cadence 15.7, and ICX

Completed PCB layout for many high-speed boards and iPhone associated with critical time driven program.

Identified additional CAD engineers and designers for hire in support of staffing Apple time critical program.

### **Northrop Grumman      December 2002 to March 2007**

PCB SI/LAYOUT Engineer/PCB Engineering Technical Staff

CAD TOOLS USED: MentorRE, Expedition, Sigrity (Power SI) and ICX

Responsible for managing and leading designers to design complex PCB layouts, simulations and further development of high speed designs and process.

Completed many complex PCB designs layouts and performed timing and frequency analysis.

Conducted trade study and presented report to upper management of the advantages against competitors of Power SI for PDS simulations

Used Power SI to help define threshold of impedance across operating frequencies and thus convinced management to purchase Power SI

Conducted training of ICX and RE (Expedition) advanced high speed routing classes including crosstalk training.

Has part of the Signal Integrity group I used Power SI analysis to study and define embedded capacitance and decoupling capacitor strategies while maintaining routability.

Analyzed stackups and defined optimal pcb stackups based on shorting loop inductance and increasing capacitance for the use of embedded capacitance in HDI designs

### **Calix Networks, - Petaluma, California      May 2002-August 2002**

PCB SI/LAYOUT Engineer and PCB Engineering Technical Manager

CAD TOOLS USED: Mentor, Expedition, Cadence, and ICX

Created CAD process using ICX for cross talk and signal integrity verification.

Completed PCB layout for many high-speed boards and implemented standards for simulation techniques and best practices including troubleshooting and organizing IBIS model and library.

Used ISMB ICX multiboard simulation tools to do system level timing and noise.

Managed 5 employees, responsible for employee reviews and design reviews.

Scheduled and monitored designs and CAD engineers for all prototype and production

### **Nokia- Mtn. - View Scotts Valley April- 2001-April 2002**

PCB SI/LAYOUT Engineer and PCB Engineering Technical Manager

CAD TOOLS USED: Allegro Cadence and ICX

Created CAD process using high-speed tools and designing VPN products.

Completed pcb layout for motherboards and ran simulations for crosstalk and timing delays

Trained CAD group in signal integrity verification through Interconnectix synthesis and signal integrity pre and post analysis.

Brought in CAD tools for simulation and developed process using Sigrity and ICX.

### **CISCO SYSTEMS - San Jose, CA.      June-2000 - April-2001**

CAD TOOLS USED: Allegro Layout; Cadence, Expedition and ICX

VPN CAD Technical Manager

Trained CAD group in the area of signal integrity verification through Interconnectix synthesis and signal integrity pre and post analysis.

Prepared and delivered infrastructure and process documentation through development of internal department web pages. Completed PCB layout for many VPN related PCB designs.

Hired and managed 8 PCB designers and their PCB design schedules and set goals and milestones for training purposes. Successfully completed multi-board exercise to verify and stimulate critical high-speed nets across multiple boards for VPN router system design.

## **HIGH SPEED DESIGN, Inc. - Scotts Valley, CA. May 1996-June 2000**

OWNER/ MANAGER/TECHNICAL CONSULTANT

CAD TOOLS USED: Mentor, Expedition, and ICX.

Owned, operated and maintained all sales and ran PCB design service while managing up to 15 employees including financial and administrative planning.

Served as lead consultant to numerous key-engineering teams to maximize signal integrity and SI analysis.

Completed PCB layout for all customers

Prepared and delivered customized advanced-level training courses in SI analysis CAD tools and PCB design using ICX and mentor graphics tools.

Provided AE, System administration, Library creation and maintenance (IBIS modeling), and process architecture support to assist in the integration on ICX into new and existing CAD environments.

Served at technical support for sales department during presentations.

## **MENTOR GRAPHICS CORPORATION-San Jose, CA. May 1996-September 1999**

SENIOR LEVEL ICX CONSULTANT-GLOBAL SUPPORT GROUP

CAD TOOLS USED: Mentor, and ICX.

Responsible for ensuring the global success of the ICX tool suite for MGC end users, including extensive travel to customer locations throughout the world.

Conducted pre-sale evaluations and post sales support to many ICX customers. Worked closely with domestic and international customers consulting on signal integrity and timing analysis, synthesis, and physical circuit design utilizing the MGC tool suite (ICX, TAU, Floor planner, Board station, RF Architect/Station).

Integrated and help sell ICX product solutions into new customer design environments. Taught training courses to new and experienced users of ICX with focus upon signal integrity analysis, verification, and physical design.

## **SEAGATE TECHNOLOGIES Inc. –Scotts Valley, CA October 1993-April 1996**

ECAD SUPPORT ENGINEER

CAD TOOLS USED: Mentor Board Station and VHDL Quicksim.

Provided technical support to PCB and ASIC group with mentor graphics tools.

Responsible for evaluation and selection of new ECAD tools and technologies.

Provided system-level support and administration to CAD team.

Successfully provided process and tool utilization training for each CAD team member.

Supported PCB designers, electrical engineers, ASIC designers, and manufacturing engineers to provide successful ASIC and PCB designs.

## **TRIMBLE NAVIGATION-Sunnyvale, CA. September 1991-July 1993**

MANAGER/LEAD PCB DESIGNER

CAD TOOLS USED: Mentor

Completed PCB layout for all prototype and production products.

Responsible for overseeing PCB prototype design and production.

Developed new PCB design process internally for efficiency and optimization, implemented re-use concept.

Provided all CAD and systems requirements for implementing new hardware and software into the CAD environment.

Provided tool customization for increased efficiency of CAD team

## **APPLE COMPUTER CORPORATION-Cupertino, CA. July 1986-October 1991**

### **SENIOR LEVEL PCB DESIGNER**

Completed PCB layout for network and communications (N&C) hardware projects.

Defined engineering process flow for all N&C new product releases.

Evaluated, implemented, and served as resident expert with new CAD software (Mentor Graphics) for CAD design group.

### **PCB Design and simulation consultant to the following Companies:**

Alcatel	Antwerp, Belgium, Petaluma, C.A.
Hewlett-Packard	Cupertino, C.A. San Jose, C.A.
Samsung Telecommunications America	Richardson, TX.
Mentor Graphics Corporation	San Jose C.A.
Apple Computer Corporation	Cupertino, C.A., Cork, Ireland

### **Training / Certifications:**

Advanced and Basic Sigrity training

Allegro Spectra Quest Training and Allegro Expert 13.6. And 14.2.

ICX boot camp-Advanced Application engineering training for ICX (Interconnectix).

Howard Johnson's 2-day high-speed Digital Design course.

Extensive Mentor Graphics and Cadence Allegro training.