

Curriculum Vitae of Miguel Gomez

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Mr. Gomez has thirty five years of experience in the design and development of hardware and software technology used in telecommunications, data communications, networking and storage infrastructure. He also is highly skilled in the use of microelectronics simulation software, ASIC & FPGA coding and Verilog. Mr. Gomez has designed and coded digital switching, optical encoders, and semiconductor memory hardware and software.

Expertise

- ASIC & FPGA Design
- Computer Architecture
- Computer Buses, Cache, and I/O
- Hardware Emulators
- Hardware Programming Languages
- Hardware Verification & Test
- Software Programming Languages
- Network Protocols
- Telecom Protocols
- Storage, Raid Controllers
- Digital Switching Technology
- Modems
- Security in place, security in motion
- Compression Algorithms,
- Optical Encoders
- Video Capture and Display Systems
- Semiconductor Memories
- Power supply design
- Power Inverter design.
- Computer Vision

Consulting Areas

Computer Architectures

- Data General
- IBM PC
- MIP 3000, 4000
- Intel 8051, x86, Pentium II
- Motorola 68000
- TI TMS320Cxx (DSP)
- PowerPC

Computer Buses:

- USB
- I2C
- PCI
- ISA
- EISA
- PCMCIA
- SBUS
- VME
- S100

Hardware Programming Languages:

- PALASM
- ABEL
- AHDL
- VHDL
- Verilog

Hardware Simulation and Compilation

- Synopsys VCD
- Synplicity
- ModelSim
- VerilogNC
- Spice, Hspice

ASIC and FPGA Design:

- Actel
- Altera
- Xilinx

Networking Protocols:

- ATM
- TCP/IP
- Ethernet
- VOIP
- HTTP/HTML
- SIP/SDP

Software Programming Languages:

- C,C++
- BASIC, VISUAL BASIC
- Assembly and Machine Languages
- FORTRAN
- Java
- Pascal
- Python/Django/bootstrap

Operating Systems:

- MSDOS
- Windows 3.1/NT/9x/2000/XP/CE
- UNIX

Communications

- Spread Spectrum (802.11a,b,g,n)
- LTE
- OFDM
- RF Transmission and reception
- CDMA/GSM

Power Electronics

- Solar Inverters
- 3-phase motors

CAD Tools

- Max+Plus II, Quartus (Altera)
- XACT, ISE (Xilinx)
- Mentor
- Orcad
- Allegro
- Viewlogic

- Schema
- P-Cad

Hardware Emulators

- Quickturn
- Ikos
- Zycad

Computer Memories

- SDRAM
- Rambus
- DDR I,II
- SDR

Compression:

- ADPCM

- H.264

Education

<u>Year</u>	<u>College or University</u>	<u>Degree</u>
1983	Yale University	BSEE

Engineering Experience

From: April 2013
To: Present
Organization: Rockslide Analytics, LLC.
Title: CEO
Summary: Mr. Gomez founded Rockslide Analytics in order to develop and eventually sell a depth sensing camera. A depth sensing camera can image a scene in three dimensions. Currently Rockslide Analytics is also used to promote Mr. Gomez's consulting and expert work.

From: August 2006
To: March 30, 2009
Organization: ActSolar Inc.
Title: VP Engineering and System Architect
Summary: Mr. Gomez has designed and built a 400 watt power inverter which takes an input voltage of 30 volts DC and converts it to 240 VAC. Included in the design is an energy compensation circuit that recovers up to 40% of power normally lost due to power factor correction issues. Included as part of the inverter system was rooftop data collection for power and temperature with wireless connections to cloud management services.

ActSolar was sold to National Semiconductor Corp. on March 19, 2009.

From: September 2004
To: August 2005
Organization: BridgeWave Inc.
Title: Consultant
Summary: Mr. Gomez built a 10 gig Ethernet test platform to facilitate manufacturing tests of Bridgewave's high speed wireless network system. This system replaced the Smart Bits Ethernet test analyzer in the manufacturing test environment.

- Built test generator: Ethernet packet generator which generated packets of various sizes, address spaces, payload and checksums.
- Built test receiver and analyzer which detected various failure mechanisms, maintained statistics and reported them to a user interface written in Lab View.
- Used the Xilinx Vertex II in the 2003 version. Used Xilinx Spartan 3e in 2004 version.

From: September 2004
To: September 2004
Organization: PA Consulting Group
Title: Consultant

Summary: Miguel Gomez has provided hardware evaluation services for corporate mergers and acquisitions. These services include systems and hardware reviews in the following areas:

- Analysis of system performance to cost of the hardware implementation. Costs include development time, flexibility of the system for future growth and final product costs.
- Review of the VHDL and Verilog code implementations, documentation and development strategies.
- VHDL and Verilog code management including compilation processes, simulation, test coverage, bug tracking and source code control.
- FPGA and ASIC tool chain management.
- Circuit board design and layout for production environments
- Circuit board certification testing for FCC, UL, and Environmental tests
- Review of production line management including assembly and test processes.

From: Jan 2003
To: May 2003
Organization: Santel Networks
Title: Consultant

Summary: Mr. Gomez Developed an optical duo-binary (ODB) encoder. At 10.7 Giga bits per second (GBps) ODB reduces the spectral spread to ½ of the ordinary NRZ format. This format allows high spectral efficiency over long distances by reducing nonlinear penalties due to narrower channel spacing and allows a higher bit rate or increases transmission distances. The project was implemented in a Xilinx FPGA running at 667 Mbs with a 10.7 GHz Mux/Demux feeding 16 LVDS streams to the FPGA. The ODB behavior was simulated in a C-coded simulation. The circuit board's highest clock speed was 10.7 Gigahertz and was modeled in HSPICE. Board level simulation was performed using NCVerilog. Several Patents were applied for and the board was shown at the Optical Fiber Communication Conference & Exposition in March of 2003.

From: March 2001
To: December 2002
Organization: Extreme Networks, Inc.
Title: Director of Hardware, Content Networking Division

Summary: Mr. Gomez managed a team of Hardware and Software engineers, which developed and maintained a Layer 5 Content Addressable Switch. The switch is capable of L2, L3, L4 switching as well as L5 switching which uses HTTP headers to make routing decisions. All routing decisions were made in real time (1 GBPs) by hardware in FPGAs while a Power PC provided a user interface, configuration management and housekeeping diagnostics. Communications between the hardware elements and the PowerPC CPU was via a PCI bus.

From: January 2000
To: March 2001
Organization: Webstacks, Inc. (Now Extreme Networks, Inc.)

Title: Director of Hardware
Summary: Extreme Networks and several venture founding partners commissioned Webstacks to build a Content Addressable Switch. As the number four employee Mr. Gomez was hired to be the system architect and to in-turn to hire the hardware team which would implement it. He hired 13 ASIC, FPGA and software engineers into his department and managed them for the duration of the project. Time to development was one year and at that time functionality was proven to Extreme, which then bought Webstacks for \$68MM cash and stock.

From: February 1997
To: December 1999
Organization: Philips Semiconductor
Title: Consultant
Summary:

- Developed the certification environment which was used by Philips Semiconductor and Microsoft to verify operation of Philips' Poseidon handheld chipset running Windows CE. This included board development, FPGA coding and simulation as well as porting Windows CE.
- Supported development of Philip's version of the Mips 4000 along with several of the peripheral devices that made up the system on a chip and the bus interconnect.
- Miguel Gomez also developed the ASIC logic and board level hardware for a 56Kbs software modem while at Philips.

From: September 1994
To: January 1997
Organization: Minden Group, Inc.
Title: President & Founder
Summary: After founding The Minden Group, Miguel Gomez developed several types of memory adapters used to adapt various sizes and types of memory sticks into Personal Computers. These were sold through retail stores throughout the nation. Over 250,000 memory adapters were sold at stores such as Fry's, CompUSA, Computer City and Future Shop. Miguel Gomez also designed a video conferencing system including a low cost video capture board and modified drivers. This system was also sold through the retail channels.
After developing these products he organized and managed a small team of 10 to 15 product managers and sales personal. Manufacturing was done in Taiwan with final assembly and distribution in the United States.

From: April 1989
To: August 1994
Organization: Spectrum Analysis, Inc.
Title: Founder & President
Summary: Consulting services company which Mr. Gomez founded specializing in computing, telephony and data systems. The company was a full service design firm capable of electrical circuit design with emphasis on ASIC, FPGA and ASIC emulation as well as complex PCB level designs. Responsibilities as founder were to identify specific business opportunities as well as to manage and implement portions of the technical projects.

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