

Brett Bymaster

San Jose, CA

Email: X@bymaster.org (replace X with "Brett")

SUMMARY: Independent engineering contractor, specializing in Analog Circuit Design

- SUMMARY:**
- Ten years of analog circuit design experience with Siemens Corporation, Sensant Corporation, Intel Corporation, and Maxim I.P.
 - Broad knowledge base from high level systems architecture conception and design down to device level design and fabrication, including digital, analog, PCB design, and ASIC design.
 - Strong team player, with extensive experience in technical project coordination
 - Graduated with Honors, Purdue University, May 2000, BSEE

EDUCATION: **Electrical Engineering, Analog design focus**

Purdue University, West Lafayette, IN 47906

GPA of 3.9 on a 4.0 scale, all semesters dean list

Courses taken included:

Semiconductor Device Fabrication Lab Analog IC Engineering

Microprocessor System & Interfacing Semiconductor Device Fundamentals

Digital Signal Processing Quantum Mechanics & Relativity

University of Iowa Part Time Graduated Studies, Iowa City, IA 52240

GPA of 4.0 of 4.0

Courses taken: Analog CMOS Circuit Design, and audited Advanced E & M

EXPERIENCE: **Siemens Medical Systems**

- 8/08 – present: Independent contractor for Siemens Medical
- 7/06 – 8/08 Staff Engineer, Supervisor Chris Daft
Electrical Engineering Technical lead for an advanced 3-D CMUT ultrasound probe. Design, layout, and fabrication of a large number of complex mixed signal PCBs (20+ layers). Design of controller FPGA (5k LUTs). Oversight of the design of a high performance low power/low noise 16ch fully integrated amplifier, and a high voltage switch ASIC. Complete design, simulation, and layout oversight of 2 analog ASICs:
 - High Voltage (200v) multi channel arbitrary waveform bias generator (>40k transistors, 9.8mmx9.8mm die)
 - Low Noise multi channel transmit receive switch, using novel diode bridge.

Siemens Medical Systems Contract Engineer

- 7/05 – 1/06 CDI Contract services, Supervisor Chris Daft
- 1/06 – 7/06 Spherion Contract services, Supervisor Chris Daft
Electrical architect of a novel 3-D CMUT using fresnel focusing. Responsible for writing specifications and technical coordination of 3 analog ASICs (LNA ASIC, and 2 high voltage ASICs). Significant systems level design tasks, including full system simulations and modeling. Worked on design and definition of imager analog front end for CMUT interfacing.

Sensant Corporation

- 8/01 – 8/03 Full Time Staff Engineer, Supervisor Igal Ladabaum
- 8/03 – 7/05 Private Contracting Engineer, Supervisor Chris Daft
Circuit designer for an Ultrasonic Medical Imaging startup. Given the task of developing interface circuitry for a novel silicon CMUT (Capacitive Micromachined Ultrasonic Transducer). This challenging assignment required a very broad knowledge base from top level conception and architectural design to circuit analysis and modeling. Generated on average 1 PCB/month with nearly 100% first run functionality; managed all aspects of back-end design including procurement, layout, and fab. Designs included architecting a broadband very low noise highly integrated in handle LNA ASIC for a new linear ultrasound probe, high power MW transmitter array (>3000 components), LNA design, transformer/impedance matching designs, high speed digital PLD/FPGA design, and Low Noise high speed transmit/receive switching circuitry. Wrote a custom linear electrical systems simulator and analysis package to interface with an already existing transducer physical model in Matlab. This simulation package allowed for advanced SNR analysis from the acoustic domain to the electrical domain, integrating transducer SNR and imager system SNR

Mission Year – Oakland California

- 9/00 – 8/01 Supervisor Josh Kaufman-Horner
Inner city Christian community service project. Taught computer classes, designed and managed computer labs, constructed web pages for non-profit organizations, worked with low income at risk children in West Oakland.

Maxim Integrated Products

- 5/00 – 8/00, Supervisor Zeki Sezgin Gunay
Mixed Signal Bi-CMOS circuit design. Designed analog and digital portions of a switched capacitor ADC. Designed analog/digital interface using synthesized VHDL. Managed full chip analog and digital simulations.

Four Coops with Intel Corporation, Folsom California

- 1/99 – 8/99, Supervisor Michel Ishac
Analog CMOS high voltage flash circuit design. Designed negative voltage architecture for a new Multiple Level Cell (MLC) flash part, including negative charge pumps and negative switches. Designed powerup circuitry, positive charge pumps, and a precision reference voltage circuit.
- 5/98 – 8/98, Supervisor John Pierron
Flash circuit design. Memory array behavioral modeling. Analog CMOS design – high voltage positive and negative switches.
- 8/97 – 12/97, Supervisor Sanjay Talreja
Flash circuit design. Mixed analog and digital circuitry and modeling and simulation. VHDL Bus Functional behavioral model of a fullchip design.
- 5/96 – 1/97, Supervisor Lance Dover
Flash System Engineering, Firmware development for a PCMCIA ATA/IDE flash hard drive, Emulator PLD design for an unreleased part.

Purdue University ECE Teaching Assistant Position

- 1/00 – 5/00, Supervisor Dr. David Meyer
Laboratory instructor for EE362, Microprocessor System & Interfacing.
Responsibilities included instructing two lab sections each week and working with students on homework and design projects.

SKILLS:

Systems/Architectural Design	Mixed Signal ASIC & PCB design
High Voltage FET designs	Transmit/Receive Switching
LNA Design	High power MW transmitter Designs
High Speed PLD design	PCB Layout Manufacturing
Mixed Signal modeling	Cadence, HSPICE, StarSim, ViewLogic
Embedded processor system design	Assembly, PERL, VHDL, AHDL, C, Matlab

ACTIVITIES:

- Volunteer, Shelter House Iowa City, IA. Ran a daily summer program for homeless children, and run weekly field trips during the school year.
- Organized a community wide effort to help a group of impoverished evicted families move from a low income apartment complex
- Organized a community wide effort to provide nightly meals at the Iowa City Shelter House.
- Grace Community Church small group Bible study leader.
- EPICS (Engineering Projects in Community Service), Purdue University – Project Leader of a design team for an interactive museum display on magnetism and electricity
- Head Electrical Engineer Purdue Solar Racing Club
Participation in 1997 Sunrayce (Cross Country Solar Vehicle Race)
- Mountain Unicycling, Swimming

AWARDS:

- Eaton Alumni Award in Design Excellence, Purdue University 2003
- Sensant Employee of the Quarter Award, 2002
- Graduated with Honors from Purdue University – Top 10% of graduating class
- Eta Kappa Nu Outstanding EE Senior Award
- Eta Kappa Nu Outstanding EE Sophomore Award
- Advanced Micro Devices EPICS design award
- Corcoran Technical Leadership achievement award
- Eta Kappa Nu Electrical Engineering Honor Society Member
- Purdue ECE department merit scholarship award
- Deans List every semester