JOSEPH OLORTEGUI ***Sr. ELECTRONICS ENGINEER***
1043 Stonebryn Dr. U.S. Citizen (310) 530-1881
Harbor City, CA 90710 e-mail: joe@joengineering.com

QUALIFICATIONS EXPERIENCE

Experience in the development, design, analysis, and system integration of electronic products from conceptual design to production stage on the following products:

AVIONICS: ATR/VME and ARINC boxes. AC/DC Power Center, APU Start Cont., Secondary Power Dist., Digital Air Data Computers, Control Display Unit, Cabin Pressure Controller, Turbine Engine Controller, Power Interrupt Unit. DC Switching Power Supplies, Universal AC Single Phase with PFC, Three-phase AC Input Power Supply to meet NAVMAT P-4855. –1275, -704, -461/462, Rescue Hoist for Helicopters. Motor Controller, Brush and Brushless. Flight Management System I/O software development. Fan Motor Controller.

SATELLITE: Battery Charger and Discharger, Power Distribution Unit, Bus Voltage Limiter, 200W DC-DC Switching Power Supply, Buck and Boost Converters to meet MIL-STD-704, -461,-1275. Designed Signal Conditioner Circuit for NiCD Battery.

MEDICAL: Respiratory Unit (a/d, d/a converter board). Cardio Monitor Sensor. Power Supplies evaluation and requirement.

INSTRUMENTATION: Mass Flow Controller (analog & digital) with Pressure and Temperature Sensor.

AUTOMOBILE: DC and AC Power Supply for a Ballast Power High Intensity Devices Bulbs. Power Distribution, Harness for MTA bus.

COMPUTER: ATE for Tape Driver, DC Motors, Opto Sensor and Magnetic Heads. Power Supply & Back Plane Design for VME/VXI. Digital Circuit Design with Intel 180xxx.

- Circuit design, development and analysis of switching power supplies (Buck, Boost, Fly-back, Push-Pull and Full-Bridge) up to 1K Watts, 250KHz. Universal AC single phase with Power Factor Correction. Designed and specified magnetic components. AC and DC input filters. Met MIL-STD-704, -461/462, DO-160C, IEC, UL and Medical requirements. Designed power supply using ac-dc and dc-dc modules. Study and research on a three-phase Power Supply with PFC.

- Circuits design analysis (error, stress, w.c., reliability (-217) and radiation hardened) and development: Analog, Digital, microprocessor (8086, -88 & -186, 87C196, I8051), PIC16C7X. Servo Drives, DACs and ADCs, Instrumentation Amplifiers, Data Acquisition card, Signal Conditioner for Pressure Transducers and Temperature Probes. A/D circuit design using linear and Logic devices (OP-AMP, CMOS, TTL, HCT, ACT, LV, etc.), Intel peripherals, bipolar. Power driver design using MOSFETS, IGBT (1200V). Developed FPGA, PIC, EPLD circuits. CAN xver PCA82C251, RS-485, RS-422. TI DSP TMS320LV2407A and F2812. Used surface mount components with extended temperature.

- Specified and supervised the design of PWB. Worked with Mechanical Engineer to define the packaging, harness and thermal layout.

- Resolved obsolesce/hard to source parts. Advised on the most appropriate and cost effective solution to obsolence problems. Identified packaging options to meet design requirements.

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- Designed and developed automated test equipment for high volume production. Written and implemented environmental test plans, acceptance test procedure for system integration, LRU and board level (MTP, ATP). Written unit validation & verification test procedures.
- Design and performed electromagnetic compatibility (EMC, -461, -462) analysis on satellite LRU and avionic instruments. Understand aspects of proper EMC design including filtering, gasketing, board layout, connector design and housing design.

- Performed and written environmental requirements for products to meet: ESS, MIL-STD-461/462, -704, -810, -202, DO-160D, IEC-555, FCC, GM9100, EMP, EMC/EMI, lightning and nuclear hardness.

- Developed and enhanced software (PL/M-86 in a VAX/VMS environment) for the Flight Management System I/O bus (ARINC-429 and ASCB). Worked with software engineer to define the HW/SW boundary interface.

- Experience with Certification & Validation: FAA (RTCA/DO-160C, DO-178A). Medical and Commercial product safety requirements: VDE, UL, CSA and IEC.

- Product enhancement: MTBF improvements, cost reduction, quality and production improvements, parts obsolescence.

PROFESSIONAL EXPERIENCE

Electronic Product Engineer, Sub-Contractor Honeywell, EMPS, Torrance 2/04 to Present
- Design and development of a Motor Controller/inverter using TI DSP (2812) for a 28V and 270V bus: Global Hawk, WAS and Airbus A-380. Redesigned Multiple output switching power supply, 900W.

Product Development Engineer, Sub-contractor Hamilton/Sundstrand, San Diego, CA 1/03 to 2/04
- Development of an uP based full authority Digital Electronic Controller to meet requirements of the PW980A APU control system.
- Design and development of a 3KVA fan brushless motor controller for the Airbus A-380 using TI DSP (2704A) and three phase input power with PFC to meet DO-160D. Worked in the development of actuator and APU controllers. Performed error, worst case and reliability (-217) analysis on existing APU and motor controllers.

Product Development Engineer, DXL USA, Torrance CA 8/01 to 10/02
- Developed a Digital Mass Flow Controller and designed Pressure and Temperature Sensor Circuits, DeviceNet communication with CAN technology. Designed DC power supply 10 to 32 VDC input.

Product Development Engineer, Sub-contractor, TRW/Lucas Aerospace, 4/99 to 6/01
- Design and development of a Motor Controller for a Rescue Hoist Helicopter (UH-1, CH-47).
- Performed environmental test to meet MIL-STD-461D/462D and DO-160D.

Product Dev. Engineer, Sub-contractor Leach Int/Sundstrand Buena Park, CA 4/96 to 4/99
- Development of the second generation DC/AC Power Conversion Unit for the Global Express Air. Used I80C186 microprocessor.

Prod. Dev. Engineer, Sub-contractor Northrop-Grumman, El Segundo, CA 10/95 to 3/96
- Design and development of the Electrical System for a MTA bus: Electric heater, in/out lighting, alarm, communications, interface to VME bus,

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Prod. Dev. Engineer, Sub-contractor Hughes Power Prod. Culver City, CA. 5/94 to 10/95
- Development of Ballast Controller, Switching Power Supply for a HID unit to meet GM9100. Single Phase AC/DC Power Supply with Power Factor Conversion (PFC). Used surface mount components.

Prod. Dev. Engineer, Sub-contractor Baxter-Edward, Irvine, CA 10/93 to 5/94
- Development of a Cardio Monitor Unit to meet European Standards. Power Supply evaluation.

Prod. Dev. Engineer, Sub-contractor Sundstrand Power Sys, San Diego, CA. 3/93 to 9/93
- Designed and developed Power Interrupt Circuit protector and Switching Power Supply (100W, 250K Hz) to meet MIL-STD-704 & DO-160C. Used surface mount components.
- Supported hardware development for new derivative Engine Sequence Unit.

Hardware/Software Product Development Engineer, Sub-contractor 3/90 to 2/93
Honeywell, Business & Commuter Aviation Systems Division, Phoenix, AZ.
- Developed real time Airborne Navigation software and test simulation for the Flight Management System, analog I/O and ARINC-429. Coded PL/M-86 on VAX, IBM PC and mainframe hosts using VMS /MS-DOS.
- Developed ATR hardware for new derivatives Digital Air Data Computer from concept to production. These met FAA requirements (DO-160C and DO-178A).
- Designed a program to reduce product rejection rate to 5%, saving $180K/month.
- Prepared documents for FAA approval, QA and Production. Prepared Test Spec. and Test Procedure (MATEL language).
- Designed and implemented Low Airspeed Awareness (LAA) circuitry.
- Written and performed V&V test procedures (hardware/software, ASCB bus and ARINC-429 bus) to be used in an ATE.

Staff Engineer, Power Supply, Hughes Aircraft Co., SCG, L.A, CA 1/86 to 8/89
- Avionics: Analyzed & developed Linear Regulator Hybrid Module, 150 Watts, multi output, low drop, low noise.
- Satellite: Analysis, design and development of a Battery Charge/discharge Controller (buck/boost regulator, 28V, 8A) from conceptual design to production stage. Saved 5 months of development time (HS-111). Developed Battery Discharge Unit using a Buck Regulator. Power Distribution Unit from conceptual design to production stage.
- Written Acceptance and Qualification Test Procedures to meet Space Vehicle requirements (MIL-STD-1540B, -1275, MIL-STD-461, –462, and -704).
- Performed worst-case circuit error analysis, thermal analysis, and radiation hardening.

COMPUTER SKILLS

Hardware: IBM compatible PC and UNIX, Workstations Sun and Mentor.
Software: PC applications: MS Office and related programs, AutoCAD-2K. Circuit schematic capturing and simulation with Mentor 6.0, Cadence: Concept V14.2; OrCAD 10. PSpice modeling and Microcap.
Languages: Turbo C, PL/M-86, FORTRAN, BASIC, UNIX and MATEL (Honeywell).

EDUCATION

M.S.E.E. and B.S.E.E., California State University at Long Beach.

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OTHER EXPERIENCES

Sr. Test Engineer, Archive Corporation, Costa Mesa, CA 10/84 to 1/86
- Designed Test Equipment for incoming inspection to test Stepper Motors, Brushless Motors, Opto Sensors and Magnetic Heads. RFI circuit design (1M Hz).
- Increased production yield of Opto Sensor subassemblies from 62% to 95%.

Electronic Circuit Design Engineer, Puritan-Bennett, L.A., CA 9/83 to 10/84
- Designed Data Acquisition board (a/d and d/a circuits) and Memory Board to interface Microprocessor I8088 for a Ventilator unit.

Electronic System Development Engineer, Garrett AIR (Allied Signal), Torrance, CA 10/78 to 9/83
- Designed and developed analog/digital circuit and microprocessor controllers (8086/8). Used op amps, bipolar, MOSFETS, TTLs, CMOS and 8086/8 peripherals. Designed Data Acquisition Unit. These circuits were used in the following units: Air Data Computer, Cabin Pressure Controller, Control Display Unit and Turbine Engine Controller.
- Designed Switching Power Supplies (push-pull, 50K Hz, 60 watts). Redesigned Ferro Resonant Power Supply. These Power Supplies met MIL-STD-704 and 461/462.
- Performed worst-case error analysis and stress analysis. Selected components to meet Military Specifications.
- Written unit Acceptance and Qualification Test Procedures to meet Military environment requirements.

Test Engineer, Tylan Corporation, Torrance, CA 9/75 to 10/78
- Performed quality and acceptance test procedure of the gas flow meter to be used in the Space Shuttle, met MIL-STD-1540.

PUBLICATIONS

A design method for directly converting Thevenin amplifier filters into Norton amplifier filters, and presented at the 14th Asilomar Conference on Circuits, Systems and Computers (IEEE).

Three Phase Power Supply with Power Factor Correction. This Power Supply will meet most of the IEC-555 requirements, reduces THD and power losses similar to the single phase PFC. This project is in progress and most of the theory has been covered. Development will continue.