



Electrical Engineer/Firmware Intern

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Job ID: 2021-13B
Regular/Temp: Intern
Full-Time/Part-Time: Part-Time
Submit Reply and Resume to: CMEHR@custom-mfg-eng.com

MUST complete Predictive Index test before applying:

<https://assessment.predictiveindex.com/54R/de91c1f6-f683-4c1d-a42b-ca14242e1f4b?type=candidateba>

Job Summary:

Are you someone who has a passion for solving problems? We have an exciting opportunity for an Electrical Engineer/Firmware Intern to be involved in the development of key parts of electrical and power electronics products for exciting verticals such as future utility and power grid subsystems, heavy equipment and industrial machinery markets, and defense and aerospace. Working under the mentorship of an electrical engineering subject matter expert, you will be assisting with electrical/electronic designs, and/or firmware and software development for new power converter and inverter products and will be involved in requirement gathering, analysis and development as well as testing the systems under the supervision of management.

Duties and Responsibilities:

- Works with design engineers to create circuit designs such as analog, digital, mixed analog and digital, power, RF, and FPGA circuit designs
- Generate circuit card assembly (CCA) design files and documents using Computer Aided Design (CAD) tools for schematic (i.e., ORCAD 17.2)
- Leverage reference designs and develop new MCU solutions for power conversion, power management, or other assembly hardware development requirements
- Design, develop, implement, debug and maintain embedded real-time software and control algorithms for power conversion functions based upon careful math modeling techniques for optimum performance and in compliance with product specifications
- Develop firmware for a new or existing advanced power conversion products (especially inverters and DC/DC and AC/DC converters) aimed at high reliability military and industrial applications such as micro/nanogrids or other off-grid power device requirements
- Develop documentation and test plans for software
- Develop standard and custom communication protocols for new systems, if required
- Use software tools in development of automated test equipment by using LabVIEW and LabWindows™/CVI with TestStand to include new or modified test software/routines
- Other software/firmware tasks as required.

Job Qualifications:

- Familiarity with PCB layout for high-speed circuits
- Microcontroller or embedded basics, and/or comfortable with MATLAB, Python, C, C#, C++, Java, or C language programming with emphasis on real-time concepts

- Basic experience and willing to rapidly learn for the development of new Microcontrollers and Digital Signal Controllers, leveraging reference design products/evaluation kits such as Texas Instruments (e.g., TI C2000 real-time control MCU, controlCARD and controlSUITE, and TIDA-XXXXX & TIDM-XXXX type or other similar reference designs).
- Basic understanding of Electrical Engineering, Computer Science
- LabVIEW Certification, Associate or Developer (preferred), exposure to LabVIEW FPGA, and LabVIEW Real-Time software and/or LabWindows/CVI (ANSI C software development environment) are all pluses
- Experience with real-time data acquisition and instrument control
- Familiarity with Power Conversion, Power Electronics, and Power Management smart control to include any design experience for power-and memory-efficient firmware
- Experience in Modbus, TCP/IP, HTTP and SNMP protocols a plus.
- Familiarity with common bus protocols such as USB, MIPI CSI2, SPI, I2C, CAN, RS232, RS485, etc.

Minimum Requirements Needed:

- Working towards a BS in electrical engineering and/or computer science
- Positions with CME require access to controlled goods and technologies subject to the International Traffic in Arms Regulations or the Export Administration Regulations. Applicants for these positions need to be "U.S. Persons," as defined in these regulations. Generally, a "U.S. Person" is a U.S. citizen, lawful permanent resident, or an individual who has been admitted as a refugee or granted asylum.
- Successful Passage of Required Screenings & Tests: Background Check, Reference, Credit, and Drug Testing

Travel Percentage Required: Minimal & Usually Local to Vendors. 0% -5%

An award-winning Tampa Bay small business for two decades, Custom Manufacturing & Engineering, Inc. (CME®) delivers Engineering, manufacturing, test, and calibration/repair services to Government and Industry. Join us at CME, where one can "Use Our Expertise to Design & Build Your Solutions" CME's culture is embodied by Core Values that are focused on: Serving the customer while protecting CME, delivering quality products and services as required, solving problems, working with energy and passion, and encouraging and developing employees that challenge themselves.

As a strong supporter of Science, Technology, Engineering and Math (STEM) and other select charitable initiatives, CME promotes and encourages employee community support to nonprofit organizations or educational institutions, especially for mentoring and school/student support. Most of CME's products and services are focused on the development and manufacturing of energy efficient and sustainable products such as more efficient power supplies, intelligent power distribution units, energy saving solar panels, and other electronic systems, end products, or components. (www.custom-mfg-eng.com).

CME is an Equal Opportunity/Affirmative Action Employer. *All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, pregnancy, sexual orientation, gender identity, national origin, age, protected veteran status, or disability status.*

*As a U.S. defense contractor CME is also subject to additional rules and regulations regarding the hiring of foreign persons. **In compliance with U.S. federal law, all persons hired will be required to verify identity and eligibility to work in the United States; CME cannot accept any person for employment who does not meet employment eligibility requirements, E-Verify verification, and/or is in the U.S. under a student (F1 and/or OPT, J1, or M1) and/or temporary work visa.** For the purposes of clarification, the I-9 defines eligibility of an employee as a: U.S. citizen, permanent resident card or alien registration card (Form I-551), a person with a temporary I-551 stamp on their passport or U.S. immigrant visa, and/or passport from the Federated States of Micronesia (FSM) or Republic of the Marshall Islands (RMI) with Forms I-94 or I-94A indicating nonimmigrant admissions under Compact of Free Association between the U.S. and FSM or RMI.*

Removal Date: 1-July-2021