



## **Senior Firmware Engineer** **EXB Solutions** **Cleveland OR Minneapolis & Remote Hybrid**

The Cardiac Ablation Solutions team is looking for a **Senior Firmware Engineer** to design and develop new designs and modifications to firmware for cardiac ablation capital equipment used in the electrophysiology lab. The Firmware Engineer II may also be responsible for designing or supporting automated test systems.

### **Areas of responsibility may include**

- Firmware design
- Firmware requirements
- Implementation/coding
- Technical documentation
- Test requirements and test procedures
- Software simulation and test automation

### **Candidates must be able to**

- Translate design inputs into firmware options and concepts
- Write detailed firmware specifications
- Implement functionality within the firmware architecture using established design patterns and best practices
- Generate and review design documentation
- Interface specifications
- Test specifications and test reports in compliance with design control procedures used within the medical device industry

Candidates must be willing to work and effectively prioritize multiple responsibilities in a fast-paced team environment.

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### **POSITION RESPONSIBILITIES**

1. Work in an evolving, maturing Agile environment as part of scrum team developing medical device firmware, in consultation with scrum masters, product owners, and senior developers.
  2. Design, develop, test, document, operate, and maintain firmware components to be applied to and integrated with electromechanical systems.
  3. Investigate, propose, and implement new technologies or processes which enhance product features, improve reliability, and/or lower cost.
  4. Apply the appropriate standards, processes, procedures, and tools throughout the software development life cycle.
  5. Effectively work with individuals from various engineering disciplines in a variety of locations, including supporting manufacturing operations in troubleshooting, assembly, and test.
  6. Provide technical assistance to and work effectively with other functional departments such as Systems, Security, Quality, Reliability, and Manufacturing.
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## **BASIC QUALIFICATIONS/EDUCATION/EXPERIENCE**

- 10+ years of firmware development experience with bachelor's degree in Engineering (Electrical, Software, or Biomedical preferred), or 5+ years of experience with additional advanced degree.
- Experience with embedded software development in C language.
- Experience in technical specification and report writing.
- Experience with basic laboratory instruments and tools (e.g. DMM, oscilloscope, logic analyzer, spectrum analyzer).
- Ability to work in a multi-site team environment displaying strong collaboration skills.
- Self-motivated and be able to work with minimal supervision.
- Excellent written and oral communication skills, including the ability to summarize complex technical concepts and problems clearly and concisely.

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## **DESIRED/PREFERRED QUALIFICATIONS**

- M.S. Software or Electrical Engineering
- Experience working with hardware, including the ability to read schematics, datasheets, and interface specifications.
- Experience in developing firmware using a Real-Time Operating System.
- Experience with medical devices or other regulated industries, cardiac ablation, or electrophysiology products is a plus.
- Specific knowledge of FDA software validation requirements and international medical device standards such as 62304.
- Experience with software security development.
- Experience with any of the following: ARM Cortex M processors (preferably STMicro),  $\mu$ C/OS-II real-time operating system, TCP/IP communication and lwIP, microcontroller communication protocols: SPI, I2C, RS232, and USB.
- Experience with IAR Embedded Workbench and/or Unity unit test framework.