CANDIDATE QUESTIONNAIRE - EMBEDDED HARDWARE CO-OP

Name:	**Date:**
School Attending:	**Expected Graduation Date:**

Thank you for your interest in Extreme Engineering Solutions and our Embedded Hardware Co-op positions! Please complete the Candidate Questionnaire and submit it with other attachments when applying. The information you provide will help us better evaluate your skills and experience, as well as understand your team preferences and interests.

Relevant Coursework

What classes have you already completed that you think are relevant to these positions?

What classes are you currently enrolled in that you think are relevant to these positions?

What classes are you planning to take next semester for your major?

Skills & Experience

Rate your experience level for the following skills on a scale of 0-5.

0 = No experience
1 = Some classroom exposure
2 = Experience from a class project/lab
3 = Experience from multiple class projects/labs
4 = Experience from clubs or personal projects in addition to class work
5 = Work experience from a previous internship, co-op, etc.

Skills / Experience	Rating
Through hole soldering	
Surface mount soldering	
DMM	
Oscilloscope	
Linux command line	
Scripting languages like Python or similar	
Programming languages like C/C++/Rust/etc.	
Schematic Design	
PCB Design	
Microcontrollers	
HDL languages like VHDL, Verilog, SystemVerilog	
Circuit/PCB simulation	

Team Preferences

X-ES is currently looking to fill co-op positions on multiple embedded hardware engineering teams.
Review the team descriptions below and indicate your interest level using the following scale:
0 = not interested, 1 = somewhat interested, 2 = very interested.

Embedded Hardware Engineering Teams	Rating
Digital Design	
Hardware Debug	
Power Engineering	
Programmable Logic	
Signal Integrity	

Digital Design

The Digital Design team is responsible for creating the digital design portions of X-ES products, initial testing of boards, distributing prototypes to internal teams, debugging problems that arise during testing, and other tasks depending on the project. Co-ops in this position will work with their mentor and other Digital Design Technical Leads in a variety of different roles. Work will be assigned with the goal of getting a mix of hands-on work with X-ES products and schematic design.

Hardware Debug

The Hardware Debug team works hands-on to diagnose failing products and to identify systemic manufacturing and design-level issues. Under the guidance of a mentor, co-ops will develop the ability to independently troubleshoot complex hardware failures, using electronic test equipment and structured problem-solving techniques to identify root causes. Co-ops will enjoy a wide range of exposure to both hardware and software aspects of board designs, as well as unique insight into board level assembly and manufacturing processes.

Power

The Power team designs, develops, simulates, and tests power supply circuits and other analog circuits for use on X-ES's single board computer and power module products. This area of work combines a wide breadth of disciplines within electrical engineering: control theory, device physics, electromagnetic field theory, analog design, and electrical fundamentals. The power team is responsible for understanding the power requirements of load devices, designing power supply circuits that meet these requirements, and providing regulated power under challenging environmental conditions and within tight space constraints. Co-ops will work with full-time power engineers to test PSU designs on prototypes and products, understand power requirements for new projects, simulate converters and the parasitic effects of printed circuit boards, and work their way into power supply circuit design.

Programmable Logic

The Programmable Logic team is responsible for creating and maintaining FPGA design projects at X-ES. These designs are used for internal testing and provided to customers as baseline reference designs for their final applications. Co-ops in this position will work directly with a mentor and participate in all stages of development from writing HDL and developing simulation testbenches to hardware testing and debugging full product designs.

Signal Integrity

The Signal Integrity team ensures high-quality signal transmission and reception between ICs on XES's single-board-computer products. This role relies on a fundamental knowledge of Transmission Line Theory and Electromagnetic Theory. Co-ops in this position will work with signal integrity engineers to analyze high-speed signals using a Time Domain simulator or 3D Full-wave solver in Frequency Domain, and gain hands-on experience utilizing high-speed oscilloscopes, VNAs or TDR equipment.