

REPORT DOCUMENTATION PAGE

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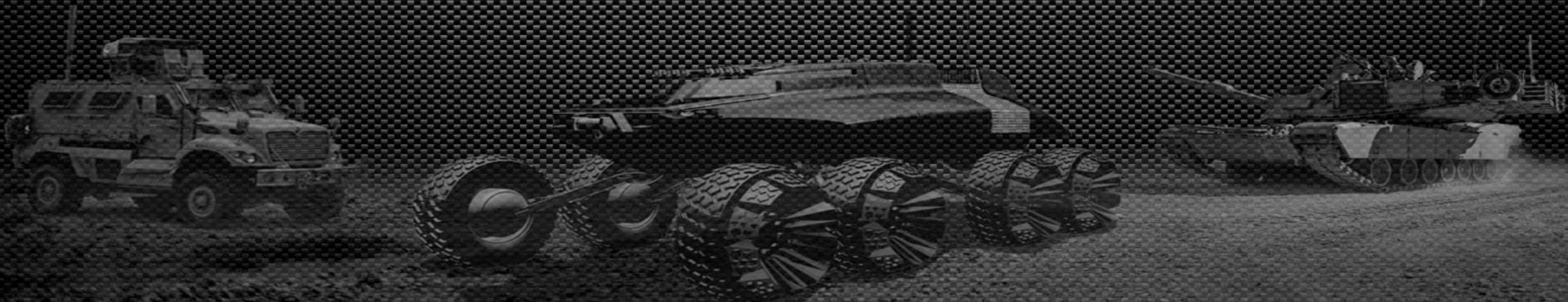


U.S. ARMY TANK AUTOMOTIVE RESEARCH, DEVELOPMENT AND ENGINEERING CENTER

Center for Systems Integration Electronics Development Team Overview

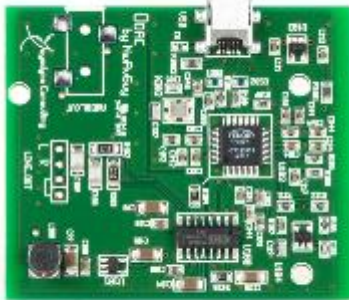
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- **18 Employees on Staff**

- Fourteen engineers and engineering technicians with backgrounds in electrical and computer engineering
- Three engineering and engineering tech contractors
- One engineering planner



- **Cable Design and Assembly**

- Design, build or build-to-print, and testing of cables and wire harnesses for vehicle data and power distribution systems.
- Support prototype and LRIP quantities.

- **PCB Design and Fabrication**

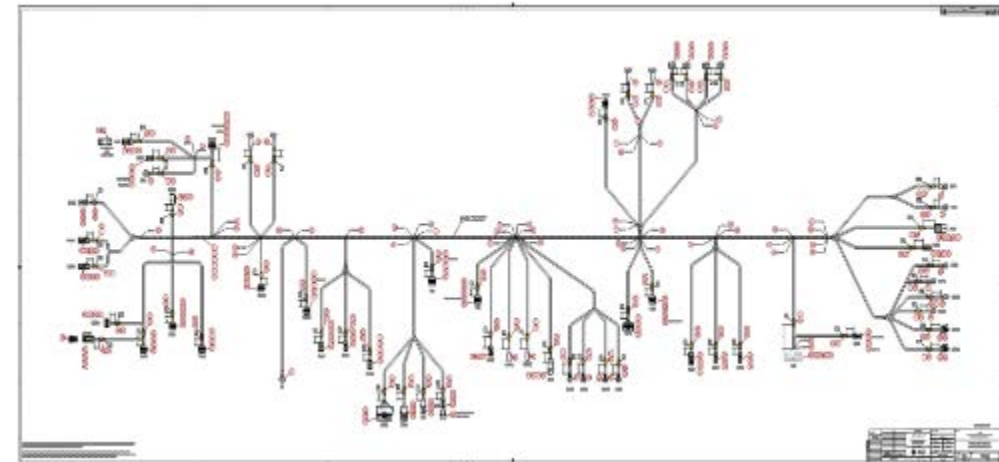
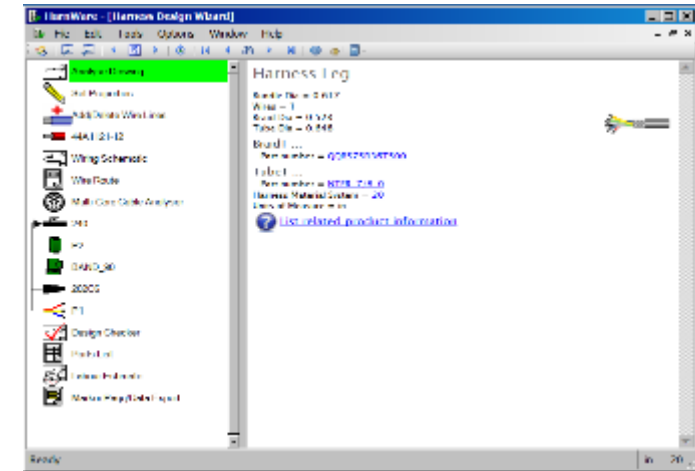
- Design and manufacture prototype printed circuit boards (PCBs) for user-defined applications.
- Support prototype and LRIP quantities.

- **Engineering Services**

- Provide engineering services or “matrix”-like support for a variety of engineering tasks from design to on-site field-support.

• Cable Design Engineering

- EDT possesses design expertise in automotive and ruggedized military-style cable assemblies
- Ability to handle prototypes through production releases
- Ability to handle cable sophistication ranging from simple to complex
- Ability to work designs from scratch, creating drawings from napkin sketches and reverse engineering
- Develop “common parts list” that can be tailored to project requirements
- Review and critique contractor-created drawings or support with general PM design questions



- Cable Fabrication

- EDT can fabricate a wide range of cables from scratch

- Power cables

- Data cables

- RF cables

- Others

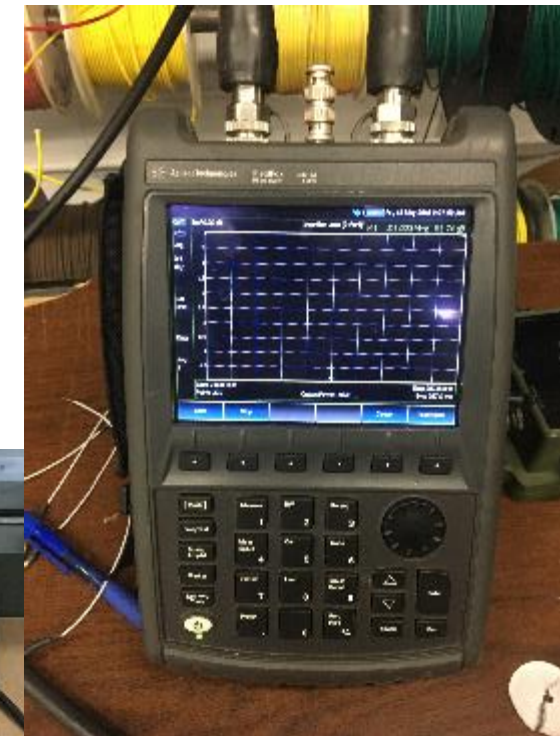
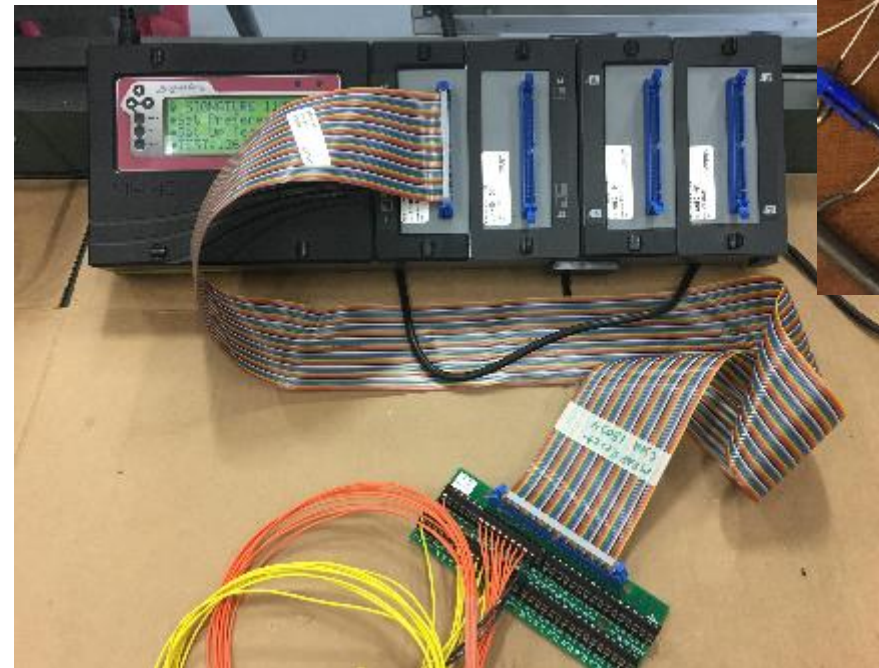
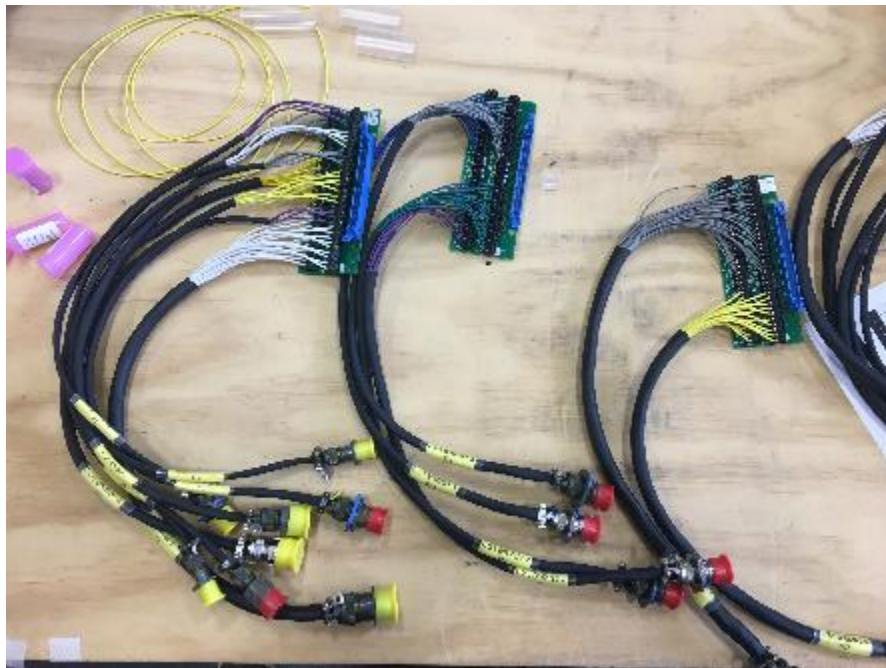
- IPC/WHMA-620 Class 3-Certified

- J-STD-001-Certified



- **Cable Quality Assurance (QA)**

- EDT-fabricated cables are checked at every phase of development from design to release
- Able to verify cable functionality, continuity-testing, potential signal degradation, RF leakage/interface, and more





- **Eight cable technician stations**
 - Cable builds
 - Cable rework



- **Cable materials lab**
 - Wire of varying gauge
 - Shrink-wrap
 - Wire braid (grounding + bonding)

Cable Oven for Shrink-wrap



Cable-Braiding Machine



Wire-Processing Machine

Quickly measures, laser labels, and cuts length of wire according to specification



- **PCB Design Engineering**

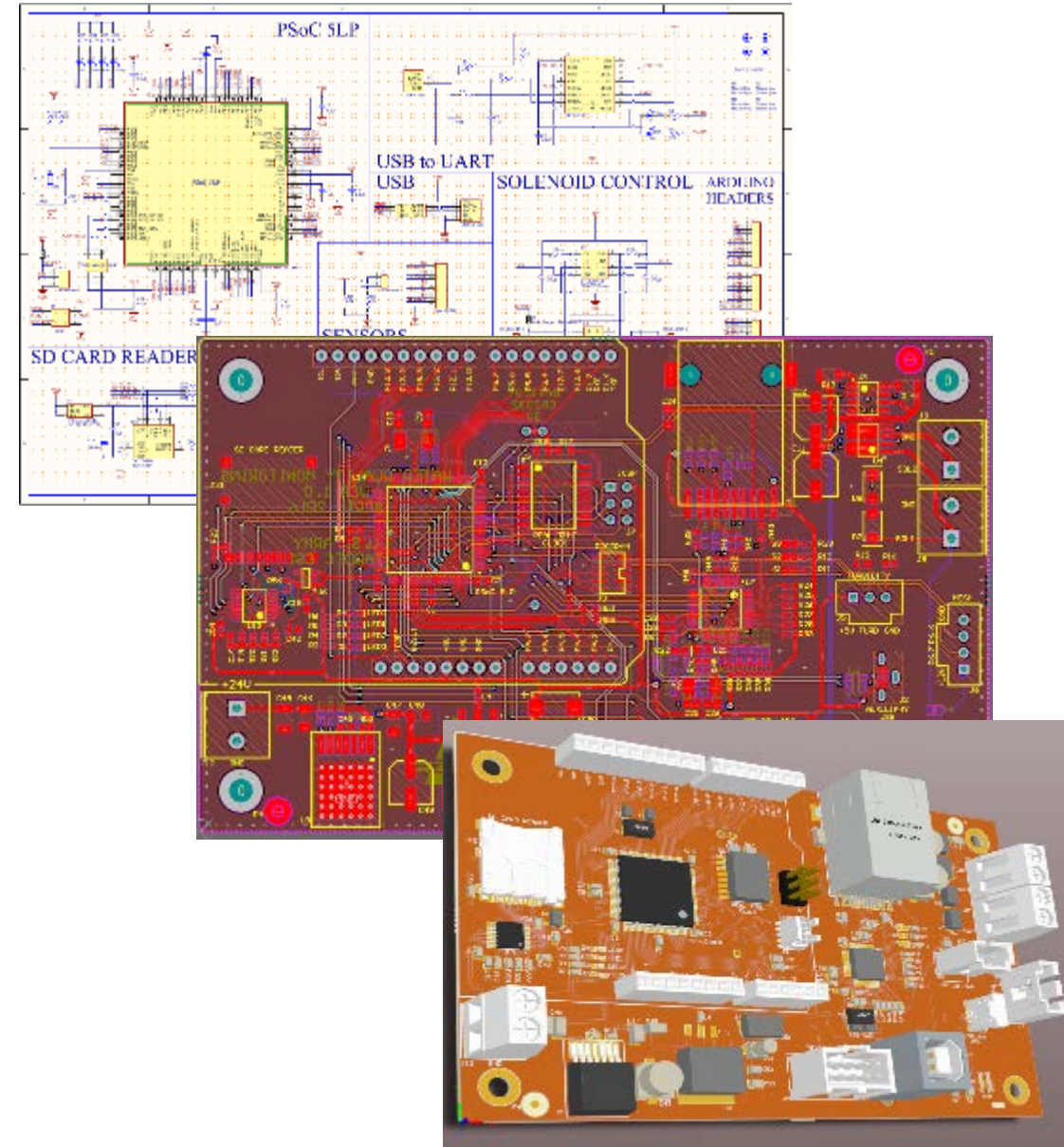
- Multiple experienced Printed Circuit Board (PCB) engineers on staff
- IPC-standardized design approaches
 - Certified Interconnect Designer (CID)-certified

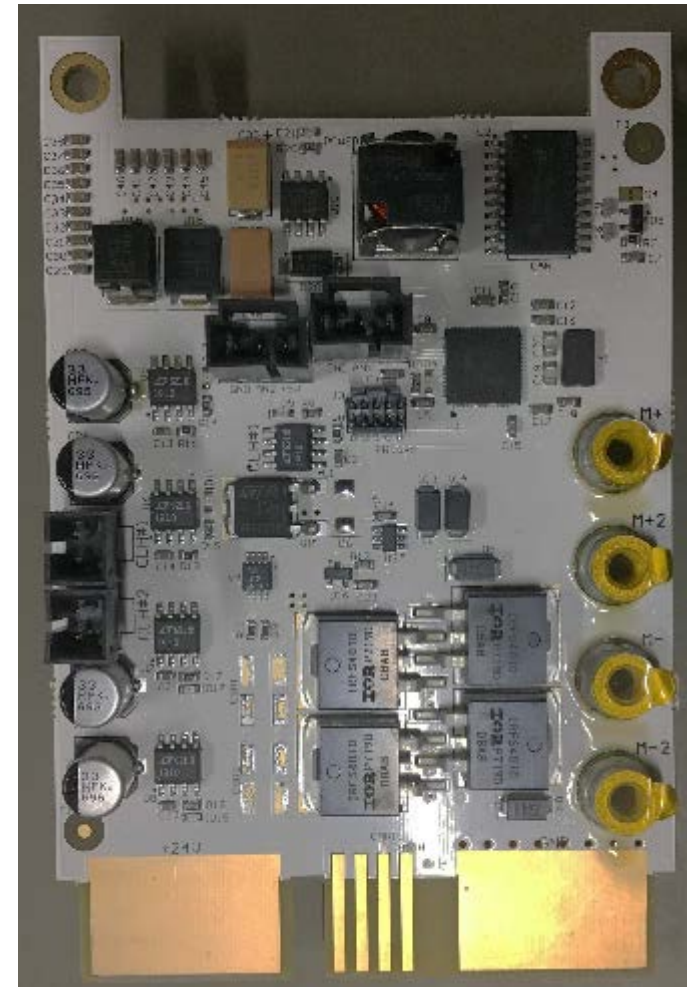
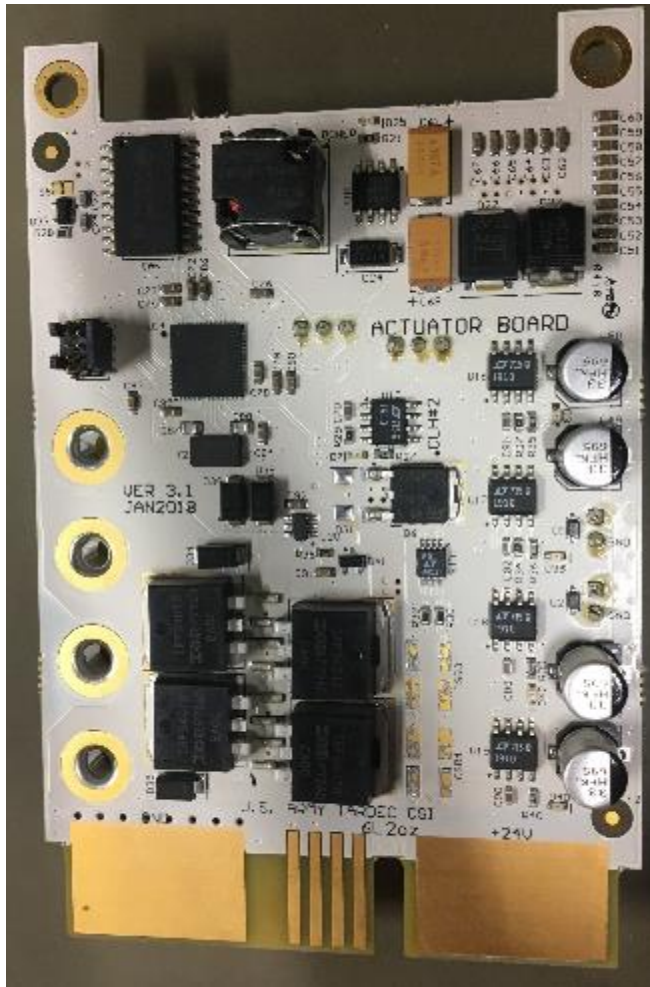
- **Altium – Design Software**

- Create & modify schematics based on customer ideas and inputs
- Seamless transition between schematics and PCB layout
- PCB design can be done in 2D and 3D, exporting 3D solids for packaging

- **Altium Vault – Common Repository**

- Parts Library: “snippets” of proven design elements (i.e. power supplies, CAN, RS-232, etc)
- Allows multiple designers to work on the same project





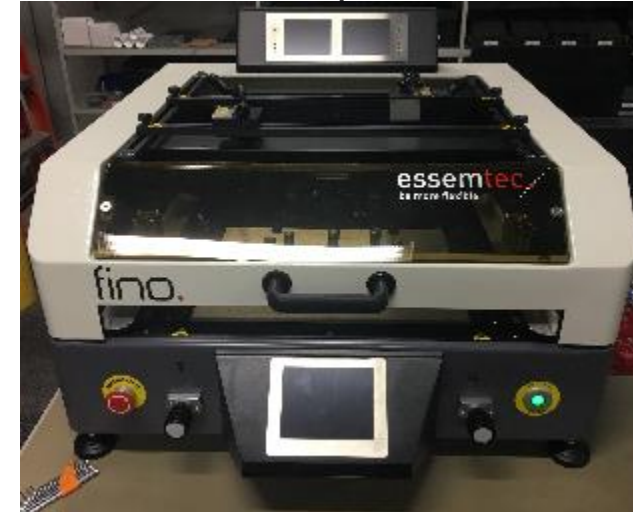
CSI-EDT Modular Actuator Control Board

Designed and Assembled In-house

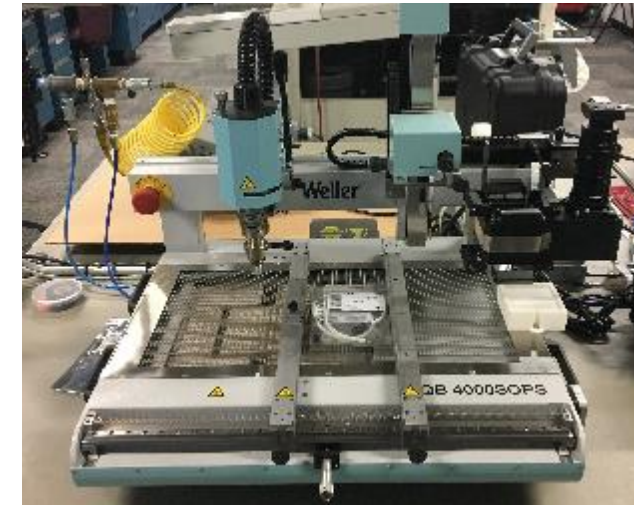


PCB Assembly, Rework, and Testing Bench

Automated PCB Stencil Printer
Places solder on to pre-fabricated PCBs



Optical Ball Grid Array Positioning System





Automated PCB Surface Mount Pick & Place

Picks up components from supplier-provided spools, and are placed in the proper position on the PCB



PCB Reflow Oven

Reflows the solder on a PCB with components placed; secures and permanently connects components to PCB



- **Complete C4ISR Services**

- Lead for C4ISR system design, development, and integration supporting MRAP Capability Sets 13 – 18, MTV Capability Sets 14 – 17, HTV Capability Set 14

- **Development of robotic control, drive-by-wire, and tele-operation systems**

- Everything from the complete design and build of off-road tele-operation kits and combat vehicle drive-by-wire systems, to design modification and assembly of control systems for robotic construction equipment.

- **Software Engineering with specialization in embedded applications**

- Embedded and low-level software development from robotic manipulator control to modified Bradley turret control systems.

- **Measurement, test, and control system development**

- Expertise with LabVIEW-based systems design and tests for a variety of control system tasks.

- **System analysis**

- Performing power and data analysis to provide design alternatives for all integration activities.

- **System integration**

- Providing in-house or on-site integration support for PM's and PEO's supporting everything from weapon system integration on ships to radio integration on manned or unmanned ground vehicles.



- **Mission**

- Enhance Warfighters capability to achieve victory through responsive, professional, leading-edge electronics products and services.

- **Vision**

- Be the DoD-recognized ground systems' electronics authority for innovative Warfighter-focused solutions.

- **Values**

- Integrity
- Respect
- Quality
- Professionalism
- Expertise

How We Fit in the TARDEC Digital Physical Thread

