

ELECTRONICS ASSEMBLY LABORATORY



The Electronics Assembly Laboratory (EAL) at the Space Dynamics Laboratory (SDL) offers assembly of one-of-a-kind printed circuit boards, small production runs of high-reliability boards, and a variety of electronics products and services delivered to the most stringent quality standards. SDL engineers have been building and modeling flight electronics since 1959. During this time, the EAL has performed space-qualified electronics design and fabrication, functional and environmental testing, and software development for projects including the Wide-field Infrared Survey Explorer (WISE), Spatial Infrared Imaging Telescope (SPIRITIII), Sounding of the Atmosphere using Broadband Emission Radiometry (SABER), Origins, Spectral Interpretation, Resource Identification, Security-Regolith Explorer (OSIRIS-REx), and many other programs.

SDL also performs printed circuit board design and layout, field-programmable gate array (FPGA) programming in very high-speed integrated circuit hardware design language (VHDL), and embedded software/driver development and updates for intelligence, surveillance, and reconnaissance applications.



OSIRIS-REx charge-coupled device (CCD) assembled at the EAL.

ON-SITE LABORATORY

The EAL is located at SDL headquarters in North Logan, Utah, and provides these primary benefits:

1. **Quick response and turnaround.** Laboratory personnel are able to work directly with engineers and can quickly respond to any necessary changes in design or board construction. This can include assembly, testing support, rework, repair, conformal coating, and modification of printing wiring assemblies (PWAs).
2. **Certified personnel.** The EAL provides in-house IPC and Level B NASA-certified trainers. The EAL's team of technical professionals is trained to NASA workmanship standards. EAL employees are experienced, highly skilled, and NASA 8739 certified in conformal coating, crimp cable and harness assembly, and electrostatic discharge (ESD) prevention practices. Training also includes IPC surface mount technology (SMT), hand soldering, and rework capabilities. In addition, all EAL staff are trained as operators/inspectors.

ELECTRONICS ASSEMBLY LABORATORY

CAPABILITIES

The EAL specializes in high-quality standard board assembly. The EAL is experienced with column grid array (CGA) assemblies up to 1752 columns, ball grid arrays (BGAs), and bottom termination components (BTCs). The lab also boasts high-quality SMT assembly and produces low-volume SMT boards. In addition, the EAL manufactures cable and harness assemblies and performs high potential testing.

EAL FEATURES

- ESD-protected environment
- Stencil printers
- Mycronic® 5K 3D automated optical inspection (AOI) system
- Mycronic® MY200 automatic pick & place machine
- Essemtec™ semi-automatic pick & place machine
- R&D VaporTech™ lead & lead-free solder vapor phase reflow ovens
- Metcal® APR-5000-XL & Scorpion rework equipment
- Austin American Technology Aqua ROSE™ board cleaner
- JBC® hand soldering stations
- Glenbrook Technologies™ X-ray equipment
- Air-Vac™ PCB RM15 selective solder
- Kurtz Ersa® HR550XL rework system
- Plato® SP-500 solder pots
- Leica® stereo microscopes, including CCD camera & printer
- JBC® IR preheater
- Fluke® 566 IR thermometer
- Tenney® Junior environmental chamber for bakeout
- Lead inspection & co-planarity tool
- Nitrogen generation & universal nitrogen purge cabinets for electronic & electrical equipment (EEE) parts storage/inventory
- Alphatron® MPT-250B cable pull tester
- Carel® air/water atomizing system for lab humidification
- Zephyrtronics® ZT-6 AirFountain™
- Ultrasonic stencil cleaner
- Lead forming & trimming press
- Conformal coat & staking cleanroom

QUALITY ASSURANCE

SDL's quality management system is certified to the AS9100D standards. Under these guiding principles, the EAL is dedicated to providing high reliability, quality, and innovation from prototype to flight or deployment, with a focus on producing on time and at cost to meet customer requirements.

All trademarks are the property of their respective owners.

