

CU-LASP Production Capabilities

Jennifer Methlie

Production Manager

303-492-6124

Jennifer.Methlie@LASP.Colorado.edu

LASP Production

- Full array of proven production services
 - Fabrication
 - Polymerics
 - Mechanical Assembly
 - Electrical Assembly (inc. harnesses)
 - Contamination Containment
- As required End-to-end assembly capabilities, or ala carte services
- All Technicians in all areas with many years of Aerospace Flight experience
- Standard ANSI 20.20 ESD procedures through all labs

LASP Production: Fabrication



Instrument Shop

Machinists each with over twenty years experience

Flight (Final Production) , Proto-type & GSE fabrication capabilities

Variety of materials from Aluminum, Delrin and Stainless to BeCu, Titanium and Macor

Equipment includes:

4-axis CNC mill 40"x20"

3-axis CNC mill 36"x18"

2-axis EZ-Trak

8" Chuck CNC Lathe

Other manual milling and lathe equipment
inc Hardinge tool room lathe

30 ton Hydraulic Press



Fabrication: Examples



LASP Production: Verification



Metrology Lab

Temperature/Humidity controlled lab

Independent verification of parts fabricated internally

Full metrology report available on request

Laser engraving capability



Metrology Lab Equipment

Zeiss Calypso CMM 24"x24"x24"

Deltronic Video comparator

Brown & Sharpe Micro-Hite

Variety of micrometers and gauges

RMI Laser Engraving System



LASP Production: Electrical Assembly



Electrical Assembly Lab

Temperature/Humidity controlled lab

Class-100 flowbenches

Zeiss microscopes on all benches

Fancort Universal leadform tooling and press

SN63PB37 Solder Kester Flux (R/RMA/RA)

Solder pot, Motorized crimp pull tester

N₂ Purge storage available for consigned parts

Electrical Assembly Lab Technicians

Average assembly experience is over 18 years

Technicians certified to

NASA Std 8739.2 & 8739.3 for board assembly

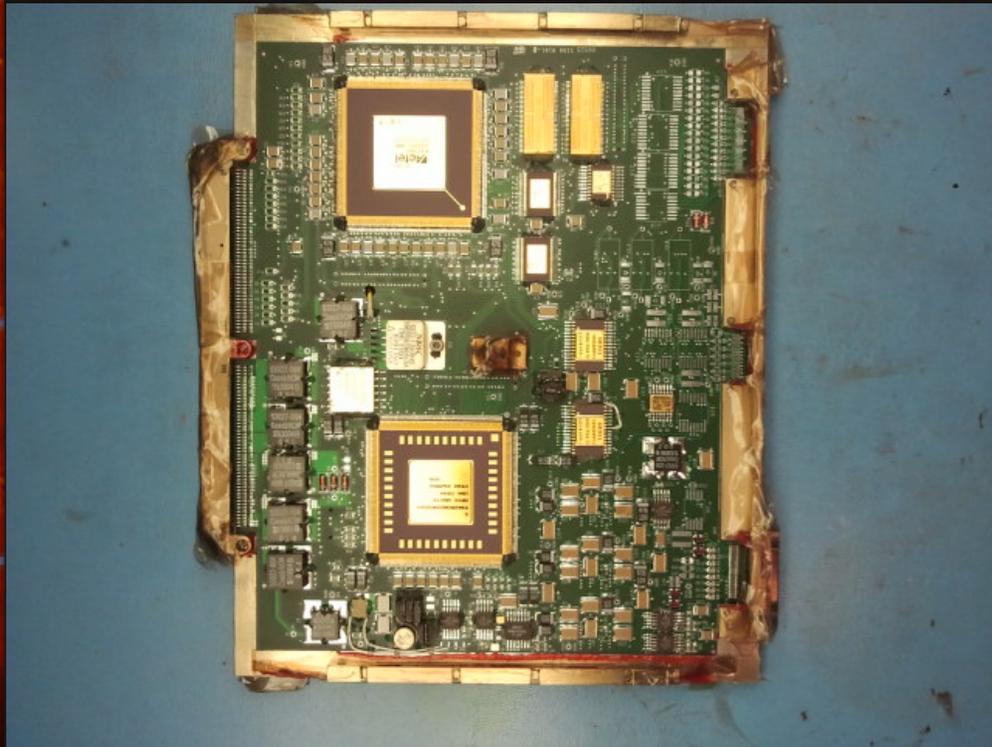
NASA Std 8739.4 for harness assembly

Lead-forming capabilities inc. FPGA up to 352 pin

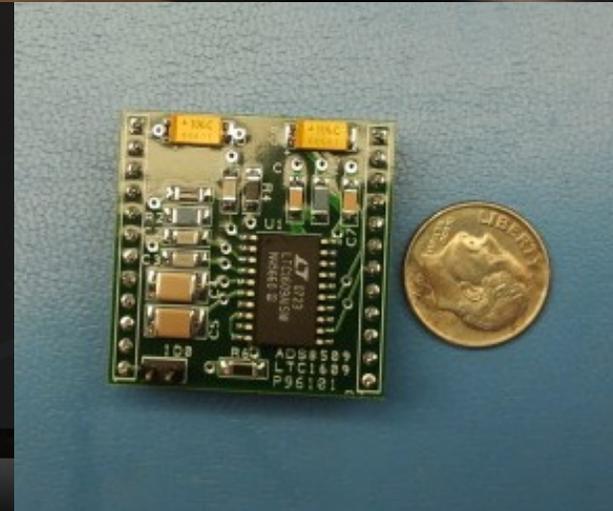
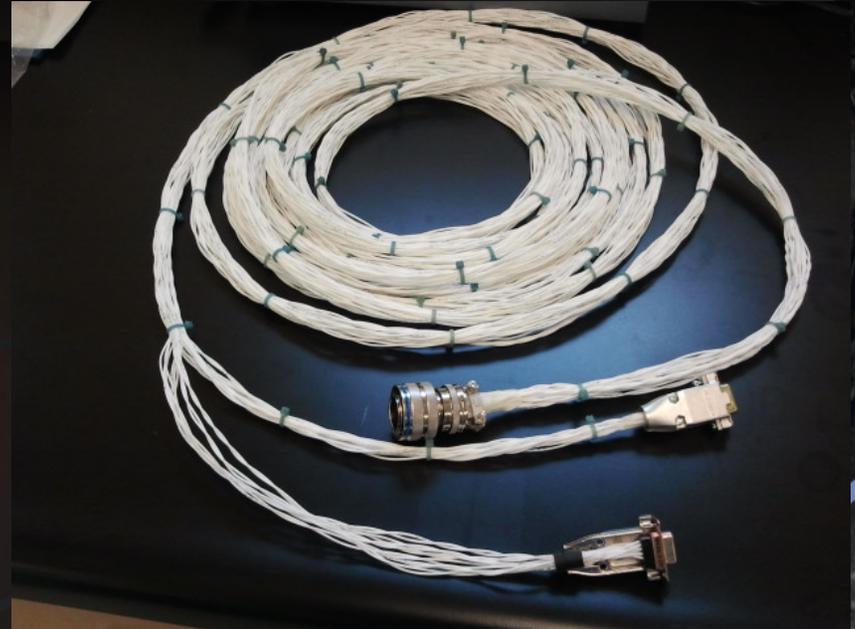
SMT components as small as 0705



Electrical Assembly: Examples



Shown with polymeric masking



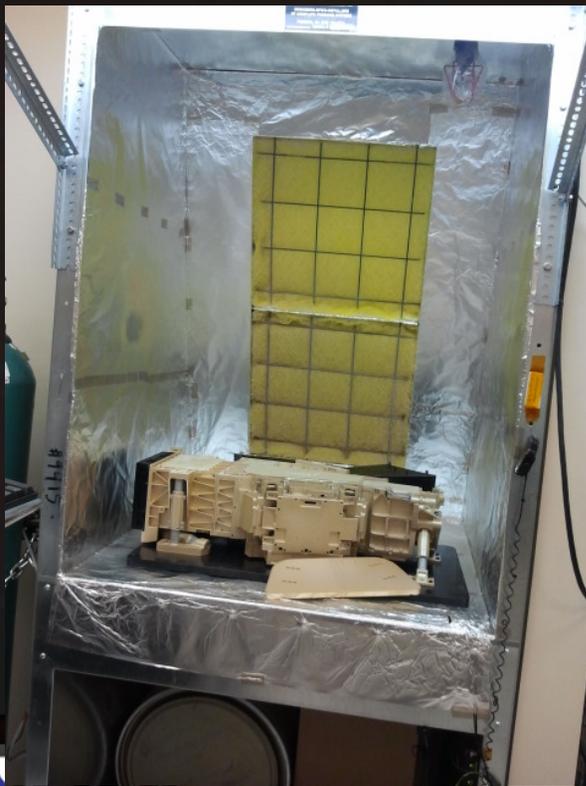
LASP Production: Polymerics Lab

Polymerics Lab Technicians

Technicians certified to NASA Std 8739.1 for polymeric applications

Average of over twenty years of experience

Experience with a wide variety of epoxies, adhesives, primers and coatings



Polymerics Lab

Temperature/Humidity controlled lab

Spray booth for paint or conformal coatings

SCS Ionograph Tester

Class-100 flowbenches with microscopes

Multiple curing ovens

Ambient filtered storage cabinet

LASP Production: Contamination Containment

Cleaning Lab

Class-10K Cleanroom plus Class-100 flowbench

Extreme ESD handling capability

25 material-specific cleaning protocols to insure proper material handling

Ultrasonic methods

Manual wipe methods

Other specialized methods

Experience with a wide variety of surfactants and cleaning agents

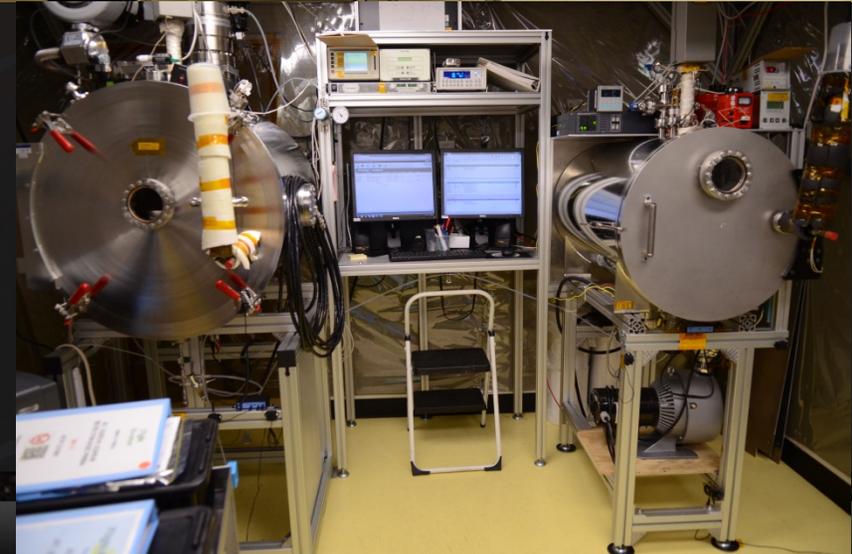
Fume hood available as required

Ionized nitrogen blower used for drying

Vacuum bake-out tank facility with Residual Gas Analyze (RGA) and Thermal Quartz Crystal Microbalance (TQCM) verification available if needed

30-150C Max

Chambers up to 21X22X33"



LASP Production: Mechanical Assembly

Mechanical Assembly Labs

Temp/Humidity controlled lab

Class-100 flowbenches for assembly work outside of Cleanroom environment

Access to Class-1K cleanrooms for assembly

Fully stocked tool boxes for each bench

ESD controls

Calibrated granite tables for flatness requirements



Mechanical Assembly Technicians

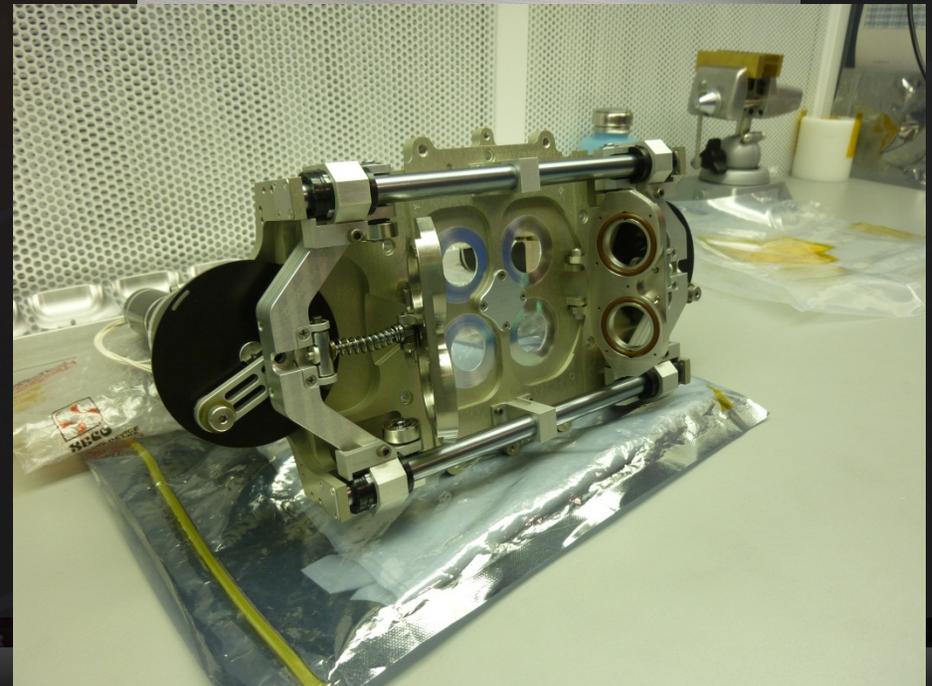
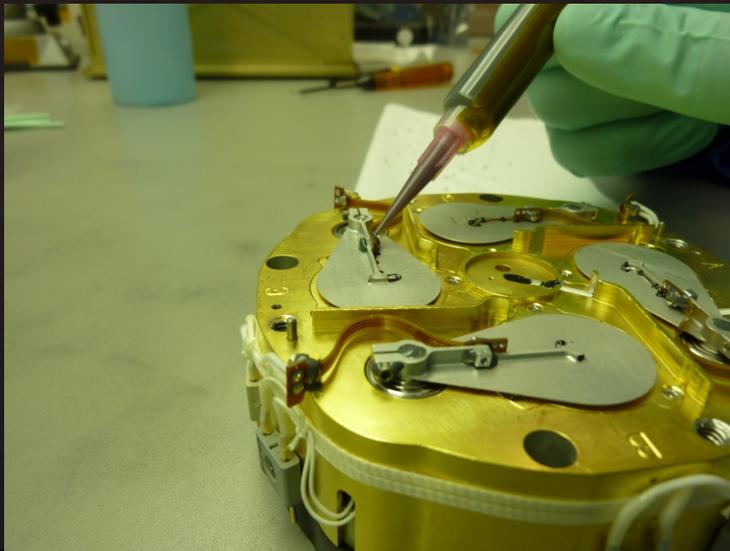
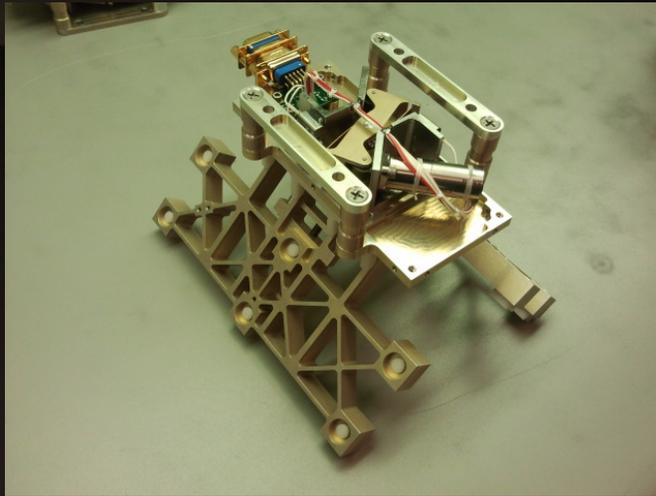
Experienced in handling delicate instruments

Helicoils (1-64 & up) and Fasteners (down to 000)

Bearing, detectors, and optics installations

NASA certified for polymeric applications

Mechanical Assembly: Examples



Mechanical Assembly: Examples

