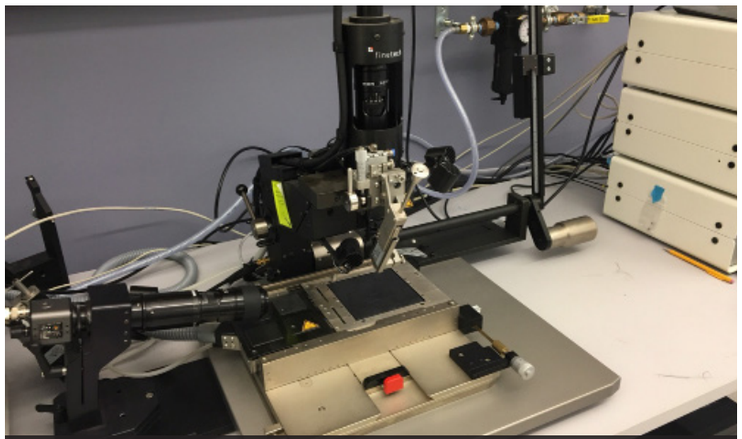
Sensor Integration



umass.edu/ials/sensor-integration

Located on the 4th floor in the Life Science Laboratories the Sensor Integration facility has equipment for precise integration of optical and electronic components into compact systems. Equipment includes probe station with laser cutter, wafer saw, wire bonders, a flip chip bonder, via plating, and a laser PCB prototyping tool.

We offer training to users to conduct experimentation for use on a fee for service basis to both internal and external researchers, academic or industry based. Following an initial consultation, covering experimental parameters training and access is arranged through the director.

ACCESS

To request access, training, or additional information please contact Joseph Bardin at jbardin@umass.edu or Robert Jackson at jackson@ecs.umass.edu.

Our rates are competitive and tiered based on needs and usage. Visit our website at *umass.edu/ials/sensor-integration* for current listing.

TRAINING

Training for new users consists of:

- lab safety training,
- operation of the instrument and associated software,
- use of data analysis software,
- exporting or presenting data,
- clean up and shutdown of the instrumentation.

Once the training is complete, researchers may schedule their experiments through the directors of Sensor Integratioin (Joseph Bardin or Robert Jackson) or online through FOM (Facilities Online Manager) at *fom.umass.edu/fom*

UMassAmherst | Core Facilities

Institute for Applied Life Sciences
University of Massachusetts Amherst
Life Science Laboratories
240 Thatcher Road
Amherst, MA 01003

Research and Innovation to Translate Basic Science into Product Candidates

PARTNER WITH US!

Sensor Integration Inquiries
Joseph Bardin, PhD
Robert W. Jackson, PhD
Sensor Integration Codirectors
S460 Life Science Laboratories
bardin@umass.edu | (413) 545-2463
jackson@ecs.umass.edu | (413) 545-1386

umass.edu/ials/sensor-integration

UMass Core Facilities Inquiries
Andrew Vinard
Core Facilities Director
S307 Life Science Laboratories
avinard@umass.edu
(413) 577-4582

umass.edu/ials/core-facilities

Revision (01/29/19)

UMassAmherst | Core Facilities

Sensor Integration

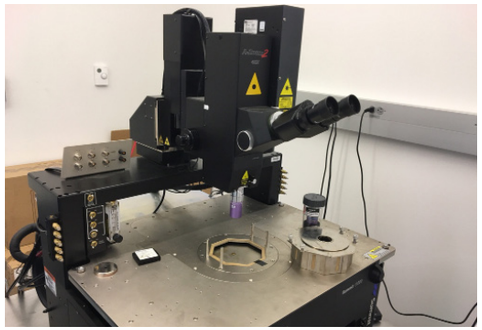
Institute for Applied Life Sciences
University of Massachusetts Amherst

Fabrication of Miniaturized Electronic Systems

EQUIPMENT

Summit 11000 Probe Station with Laser Cutter

For measuring and modifying prototype integrated circuits



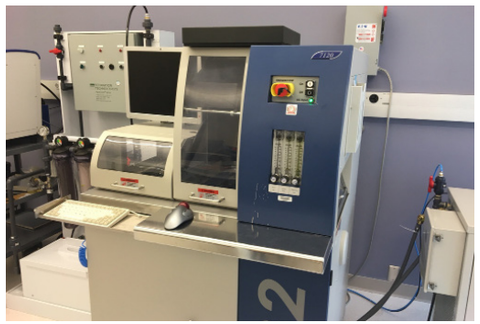
EZLaze3 laser cutter

- for cutting metal traces (532 nm)
- for removing passivation(355nm)

Objectives: M Plan Apo NUV 50X, 100X

Advanced Dicing Technology 7122

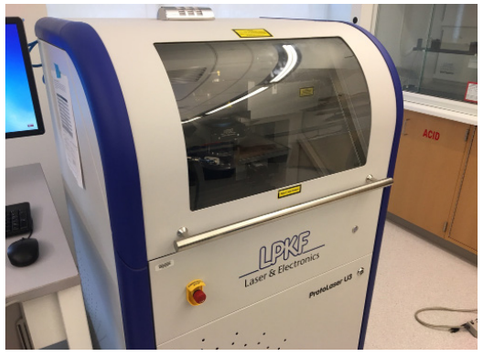
For precision dicing of hard material components such as silicon wafers



Work piece size: up to 200mm x 200mm
Indexing: resolution/accuracy is 0.2 µm/1.5 µm
Cut Depth: resolution/accuracy is 0.2 µm/2.0 µm

LPKF Protolaser U3

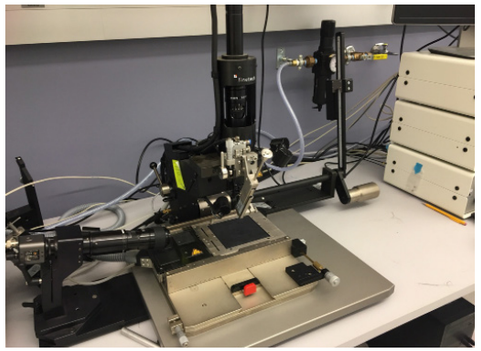
For prototyping of printed circuit boards



Diameter of UV laser beam 20µm
Resolution of scanfield 2µm
Repeatability +/- 2µm
Surface structures down to 75µm
Max material size 9” x 12” x 0.27”

FineTech FINEPLACER pico ma

For flip chip bonding and die attach



Placement accuracy 5 µm
Components from 0.125 mm x 0.125 mm to 100 mm x 100 mm
Working area up to 450 mm x 234 mm
Supports wafer/substrate sizes up to 200 mm

MASSACHUSETTS LIFE SCIENCES CENTER
A significant portion of core equipment has been purchased through MLSC grant funding support.

LPKF Minicotac RS

For plating via holes in prototype printed circuit boards

Maximum size board 9” x 12”
Minimum via size 0.4mm

LPKF Multi-press S

For laminating multiple layers of printed circuit boards

Laminating area 9” x 12”
Up to 8 layers

Additional Equipment:

- Vector Network Analyzer: Keysight E5071c 8.5 GHz with Ecal kit
- Solder Rework Station: Weller wha3000
- Wire Bonders(2): TPT HB16 (stud bump and bump/wedge)
- DC triple power supplies (4): Keysight E3631a
- Logic Analyzer: Keysight 16806
- DC Sourcemeters(2): Keysight B2901
- Oscilloscope 1GHz: Keysight MOSX3104a
- Oscilloscope handheld: Keysight U1620a