

EQUIPMENT & TOOLS IN NEXTFLEX PRINT LAB

Printing, Deposition, Ablation & Characterization

COMPANY NAME	DESCRIPTION	PROCESS CAPABILITY	MODEL #
Optomec	Digital Printing on 3D Surfaces	5 Axes of Motion, Down to 5 µm Features	Aerosol Jet 5X
nScript	Multifunction FHE Tool	Printing, PnP, Micromachining, and 3D Printing	3Dn-500
Komori	Offset Gravure Press for Fine Feature Printing	Development of Alternate Process for Fine Line (10 µm) Printing	PEPIO F6
Space Foundry	Plasma-jet deposition system	Dry print process tailors ink material properties in-situ, improved adhesion	Printer: 74.3.3 Printhead: #135,3
SUSS	Digital Print Dispensing Units 1 and 2	Digital Printing with Wide Array of Print Heads for Fine Line	PiXDRO IP410
SMIT	PECVD Deposition of Thin Films	Deposit Insulating Films for Multilayer Applications	FLEx
Fujifilm - Dimatix	Tabletop Inkjet Printing	Printing Down to 100 µm, Developing Narrower Print Traces	DMP-2850
HMI	Screen Print Conductor/Solder (500mm x 500mm Frame)	Automatic Flood/Squeegee Bar, High Resolution Vision System	MSP-9156C
ESI	Laser Ablation, Via Drilling, Dicing	Laser Via Drilling and Precision Laser Micromachining	LodeStone
Keyence	Confocal Laser Scanning Microscope for Nano-Scale Inspection	3D Confocal Microscope for Surface Inspection Display Resolution 1 nm	VK-X200K
ScanCAD International	High Precision Flat Bed Scanner	Screen/Stencil/Image Inspection	ScanINSPECT
IDS	Aerosol Printer	High resolution aerosol printing <<35µm resolution on 3 motion axes	Nanojet

Curing, Automation, Other

COMPANY NAME	DESCRIPTION	PROCESS CAPABILITY	MODEL #
BTU International	Thermal Cure Conveyor Oven (8 Zone)	Cure Film Substrates up to 350°C with Nitrogen	PYRAMAX 100N
adphos	IR Cure Conveyor	5.5kW Power on 10" x 12" Substrate	Mini Lab 230V/25A
Uvitron International	UV Flood Cure Lamp	100MW/sq cm Power, 320-390 nm Wavelength	Sunray 400 SM
TestEquity	Forced Air Oven	Maximum Temperature of 250°C	FS4-1
Blue-M	Convection Oven for Thermal Cure	Maximum Temperature of 300°C	DCC-256-C
Teknek	Contact Cleaner for Substrate Cleaning	Tacky Roll Cleaning of Both Sides of 12" Wide Substrate	DeskTop12"N
Olympus	Optical Microscope	Optical Inspection with Image Recording/Display	BH-2
Heraeus	UV Cure Conveyor	2 1300M UV Lamp and Conveyor, Speed 1-21 fpm	DRS6-210
Yamato	Forced Air Oven	Curing of Medical Device Components	DX602C

Wet Lab

COMPANY NAME	DESCRIPTION	PROCESS CAPABILITY	MODEL #
Anton Paar	Rheometer	Characterization of Printable Materials	MCR302
Flacktek	Speed Mixer	Laboratory Mixing System	DAC 800.2 VAC LR
Print Head Doctor	Automated Ink Jet Head Cleaner	Recovery of solvent, UV and water-based print heads	PHD11
Rhinotech	High Pressure Print Screen Washer	Automated washer with traveling, two-headed rotating spray wand	HP2536

Wafer Processing

COMPANY NAME	DESCRIPTION	PROCESS CAPABILITY	MODEL #
Yield Engineering Systems	Plasma Asher	Multi-gas plasma wafer cleaning	YES-R1
DISCO	Wafer Dicer	Dicing of wafers as part of dice-before-grind (DBG) process	DFD6360
DISCO	Wafer Plasma Treatment	Plasma stress relief after DBG	FRFH-01
K&S	Stud Bumper	Wafer level stud bumping and wire bonding. Low temperature gold bumping. Bond placement accuracy of 3.5µm @ 3 sigma	ATPremier Plus

EQUIPMENT & TOOLS IN NEXTFLEX ASSEMBLY LAB

COMPANY NAME	DESCRIPTION	PROCESS CAPABILITY	MODEL #
Besi Datacon	Die Bonder and PnP with Flipchip	Die Bonding to Substrates (from Wafer/Gelpak or Tray), +/- 10 µm Accuracy	2200 evo
Universal Instrument Corp.	SMT PnP	SMT PnP Tool from Tape/Tray	Fuzion 1-30
systemECH	Precision Transfer Print System	Development of FHE Assembly Using Novel Transfer Print Methodology	PBDT
Nordson - ASYMTEK	Precision Dispense on X-Y Table	Interchangeable Dispense Heads for Adhesive/Inks/Encapsulation	D-585 Dispensmate
TPS - Blue M	Convection Oven for Thermal Cure	Maximum Temperature of 250°C, Nitrogen Blanketing Available	DC-256-B-ST350
Burton	Heated Press for Molding/Encapsulation	13 Ton Heated Press with Adjustable Speed, Pressure, and Temperature	HP-800
Elmarco	Conductive Fiber Spinning	Electrostatic Spinning of Doped Conductive Fibers for Textile Embedding	NS LAB 500
UVP (Ultra-Violet Products Ltd)	High Intensity UV Lamp (365 nm) for Inspection	Fluoresces Contamination/Particles During Manual Inspection of Substrates	B-100AP
ProLam	Heated Roll Laminator - 12" Wide	Adjustable Temperature, Speed and Nip Pressure	PL-1200
Salvis Lab	Vacuum Oven	Vacuum, Nitrogen Purge, Maximum Temperature of 200°C	VC-20
Fanuc	Robotic Arm	Precision Placement and Assembly	SR-3iA
NSW	Dual head jet dispense	Jet dispense two adhesives simultaneously using two Vermes MDS-3280 jet dispensers	S400M
FineTech	Manual Die Bonder	Manual multi-purpose bonder; heated stage and tool; 5um placement accuracy	FINEPLACER pico ma
Digital Knight	Laminator/Swing-away press	16 x 20" area, max. temperature 315°C	DK20SP
Leica	Optical Microscope	Optical Inspection up to 55X with image recording	S9i

EQUIPMENT & TOOLS IN NEXTFLEX TEST LAB

COMPANY NAME	DESCRIPTION	PROCESS CAPABILITY	MODEL #
TestEquity	Temperature Chamber (Environmental Testing)	Temperature Range from 23°C to 175°C	115
TestEquity	Temperature Humidity Chamber (Environmental Testing) 1 and 2	Temperature Range from -73°C to +175°C, RH 10% to 98%	1007H
Cincinnati Sub-Zero	Temperature Humidity Chamber (Environmental Testing)	Rapid Cycling, Temperature Range -73°C to +190°C, RH 10% to 98%	ZPHS-8
Q-Lab	Xenon Test Chamber for Sunlight Exposure	Multiple Irradiance Ranges, Various Filters Available	Xe-3-B
Jovil Manufacturing Co.	Fatigue-Ductility Flex Testing	Flexural Fatigue Life at Various Bend Radii	3FDF
Nikon	Optical Microscope	Manual Inspection 10X-50X	SMZ1000
Yuasa	Endurance Tester	Tension-free Folding	ET254M002
Yuasa	Cycling Stretch Tester Units 1 and 2	Mechanical Cyclic Testing of FHE Circuits	DX-ST ST1500100-ST
Micromanipulator	Probe Station	Probe Circuit/Component Test Points	450PM-A
Formlabs	3D Print, Clean and Cure	Rapid Prototype and Build of 3-Dimensional Parts	Form 2
Stäubli	6-axis Robotic Tool	Multi-function robotic FHE tool incl. high resolution Keyence vision system, print heads and tool changer	TX2-60
Space Foundry	Plasma Jet Printer	Print head capable of depositing a variety of materials sequentially. Installed on Stäubli tool	PJP5050-D-L-O
Resource Engineering, Inc.	Large 5-axis motion machine	Precise multi-modal and conformal printing on large parts	N/A

To learn more about the equipment in the NextFlex Technology Hub, contact Art Wall, NextFlex Director of Fab Operations, at 40.8-797-2260 or via email at awall@nextflex.us.

Nov. 2021