



Lab Manual


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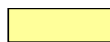
Final Report

6" Equipment Capability

Compatibility of Microlab Tools with 4" and 6" Substrates



Available



CMOS Dedicated

Equipment	Description	4"	6"
4ptprb	4-point resistivity probes	√	√
aln	AMS-2003 Aluminum nitride sputtering	NO*	√
amst	AMST Molecular Vapor Deposition	√	√
asiq	Tencor AS500 Profilometer	√	√
asml	ASM Lithography 5500/90 Stepper	NO	√
autoprobe	Electroglass Autoprobe wafer tester	√	√
centura	Centura deep silicon etch (centura-dps)	NO*	√
centura-met	Centura metal etch chamber	NO	√
centura-mxp	Centura oxide etch chamber	NO*	√
cmp	Strausbaugh CMP (tech required for chuck change)	√	√
cpa	CPA three-target sputterer	√	√
cpd	Critical Point Drying Apparatus	√	√
crestec	Electron beam lithography system	√	√
dektak	Dektak Surface Profilometer	√	√
dw	Davis & Wilder Evaporator	√	NO
edwards	Edwards Sputter System	√	√
edwardseb3	Edwards 306 E-Beam System	√	√
flexus	Tencor Flexus FLX2320 Stress Gauge	√	√
gartek	Gartek sputterer	√	NO
gcaws2	GCA 6200 a 10X G-Line wafer stepper	√	NO
gcaws6	GCA 8500 a 5X I-line wafer stepper	NO	√
heatpulse1	AG Heatpulse 210T rapid thermal annealer (GaAs)	√	NO
heatpulse2	AG Heatpulse 610 rapid thermal annealer (Si)	√	NO
heatpulse3	AG Heatpulse 610 rapid thermal annealer (√	√
heatpulse4	AG Heatpulse 610 rapid thermal annealer	√	√
hfvapor	Idonus 6' HF Vapor Etcher	√	√
hummer	Gold evaporator for cssem samples	√	NO

Equipment	Description	4"	6"
ionmill	Veeco ion mill	√	NO
irscope	Infrared Video Camera (wafer voids inspection)	√	√
iv	I-V probe station	√	√
jeol107	JEOL 6400 E-beam Writer	√	NO
kruss	Kruss Contact Angle Analyzer	√	√
ksaligner	Karl Suss Mask/Bond Aligner	√	√
ksba6	Karl Suss Bond Aligner	√	NO*
ksbonder	Karl Suss Wafer Bonder (tech required for chuck change)	√	NO*
lam1	Lam plasma etcher for nitride	√	√
lam2	Lam plasma etcher for SiO2	√	√
lam3	Lam 690 aluminum etcher	√	√
lam4	Lam Research Rainbow 4400 Poly-Si etcher	√	NO
lam5	Lam 9400 TCP Poly-Si Etcher	NO	√
leo	Leo Scanning Electron Microscope	√	√
matrix	Matrix 106 Resist Remover	√	√
memscope	MEMS Microscope	√	√
microscope	all microscopes	√	√
nanoduv	Nanospec/DUV Microspectrophotometer	√	√
nanospec	Nanospec AFT film thickness measuring system	√	√
novellus	Novellus MI2 Sputterer	NO*	√
nrc	NRC evaporator	√	NO
oxford	Oxford Plasmalab System 100 Gas etcher	√	√
oxford2	Oxford Plasmalab 80 PECVD	√	√
p5000	Applied P5000 TEOS PECVD	NO*	√
parylene	Specialty Coating Systems PDS2010	√	√
picosun	Picosun Atomic Layer Deposition (ALD)	√	√
pgecr	Plasma Quest ECR PECVD	√	√
primeoven	Yield Engineering Systems YES – 5	√	√
ptherm	Plasmatherm reactive ion etcher	√	√
quintel	Quintel Q4000-6IR Contact Aligner	√	NO*
randex	Randex sputtering system	√	NO*
reichert	Reichert Polylite inspection microscope	√	√
rudolph	Rudolph AutoEL-III ellipsometer	√	√
sca	Surface Charge Analyzer	√	√
semi	Semigroup plasma etcher	√	√
sink3	tmah and koh etch	√	√
sink4	general use sink	√	√
sink5	general use sink	√	√

Equipment	Description	4"	6"
sink6	pre-furnace clean sink	√	√
sink7	general use sink	√	√
sink8	general use sink	√	√
sink9	Specific projects sink	√	√
sink432a	general use sink	√	√
sink432c	Fumehood sink general use	√	√
sinkcmp	Post CMP cleaning sink	√	√
sinkplate	Fumehood for electroplating	√	√
sopra	Sopra Variable Angle/Frequency Ellipsometer	√	√
spinner1	Headway spinner	√	√
sts	Surface Technology Systems ICP Etcher	NO*	YES
svgcoat1	SVG 8626/36 Coater/Bake, front track	NO	√
svgcoat2	SVG 8626/36 Coat, rear track	√	NO
svgcoat3	SVG 8626 thick resist coater	√	NO
svgcoat6	SVG8800 coat track	NO	√
svgdev	SVG 8632 CTD developer	√	NO
svgdev6	SVG8800 Develop track	NO	√
technics-c	Technics plasma descum or ash processes	√	√
tensiometer	Sigma 701 thin film tension meter	√	√
topgun	s-gun sputtering system	√	NO
tylan5	Tylan furnace tube #5	√	NO
tylan6	Tylan furnace tube #6	√	NO
tylan7	Tylan furnace tube #7	√	NO
tylan8	Tylan furnace tube #8	√	NO
tystar1	Tystar 6" Wet/Dry Oxidation (Gate oxidation)	√	√
tystar2	Tystar 6" Wet/Dry Oxidation	√	√
tystar3	Tystar 6" Wet/Dry Oxidation	√	√
tystar4	Tystar 6" Wet/Dry Oxidation	√	√
tystar9	Tystar LPCVD Nitride/HTO	√	√
tystar10	Tystar LPCVD Doped Poly	√	√
tystar11	Tystar LPCVD Doped LTO	√	√
tystar12	Tystar LPCVD Doped LTO	√	√
tystar13	Tystar 6" POCL3	√	√
tystar14	Tystar 6" Solid-Source Boron	√	√
tystar15	Tystar 6" LPCVD Silicon Carbide	√	√
tystar16	Tystar 6" LPCVD Doped Poly	√	√
tystar17	Tystar LPCVD Low Stress Nitride	√	√

Equipment	Description	4"	6"
tystar18	Tystar 6" MOS Sinter	√	√
tystar19	Tystar LPCVD Si/Ge for Device	√	√
tystar20	Tystar Si/Ge LPCVD Si/Ge for MEMS	√	√
ultek	E-Beam evaporator	√	NO
uvbake	Fusion Photostabilization System	√	√
uvscope	Leica I-line Microscope	√	√
v401	Veeco 401 evaporator	√	NO
vacoven	YES (Yield Eng. Systems) 450PBS-29	√	√
vickers	Vickers line width measuring system	√	√
wafersaw	Esec 8003 Dicing saw	√	√
westbond	West Bond 7400B wire bonder, Al	√	√
westbond2	West Bond 7400B wire bonder, Au	√	√
wyko	Wyko Optical Profilometer	√	√
xdif	X-Ray Diffractometer	√	√
xetch	XeF2 Bulk Silicon Etcher	√	√

aln 4" wafers can be processed on a specially made 6" handle wafer, specific to this tool.
 Centura (dps) 4" wafers can be processed with a 6" handle wafer. [See Chapter 1.3 - MOD 35.](#)
 Centura-MxP+ 4" wafers can be processed with a 6" handle wafer. [See Chapter 1.3 - MOD 35.](#)
 ksba6 6" conversion package available (fixture) can make the tool 6" compatible, currently only 4" capable.
 ksbonder 6" unitool bondhead available. Non-aligned 6" bonding possible without ksba6 bond align chucks.
 Novellus 4" wafers can be processed with a 6" pocket wafer or handle wafer ([See Chapter 1.3 - MOD 35](#)).
 P-5000 4" wafers can be processed with a 6" pocket wafer or handle wafer ([See Chapter 1.3 - MOD 35](#)).
 quintel 6" mask align chucks and 7" mask holder available. Tool can support both 4" and 6".
 randex Sputter etch is available for 4" wafers only. Sputter deposition is both 4" and 6" compatible.
 sts 4" wafers can be processed with a 6" handle wafer. See [Chapter 1.3 - MOD 35.](#)