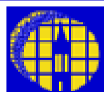

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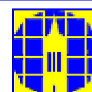

Chapter 1.8

Equipment Capability

Compatibility of NanoLab Tools with 4", 6" and 8" Substrates

√- Available **NO- Not Available**

Equipment	Description	4"	6"	8”
4ptprb	4-point resistivity probes (automated system)	√	√	See Note
afm2	Digital Instruments AFM	√	√	See Note
aln2	Tegal Endeavor AT sputter deposition system	See Note	√	See Note
amst	AMST Molecular Vapor Deposition	√	√	NO
asiq	Tencor AS500 Profilometer	√	√	√
asml300	ASM Lithography 5500/300 Stepper	See Note	√	See Note
autoprobe	Electroglass Autoprobe wafer tester	√	√	√
axcelis	Fusion M200PCU Photostabilizer System	√	√	√
cambridge	Cambridge Fiji F200 Plasma ALD	√	√	√
cde-resmap	CDE 4-ptprb Automated Mapper, 2" -12"	√	√	√
centura3-5	Centura deep silicon etch (centura-dps)	See Note	√	See Note
centura-met	Centura metal etch chamber	NO	√	See Note
centura-mxp	Centura oxide etch chamber	See Note	√	See Note
centura-stri	Centura resist stripper	See Note	√	See Note
cha	CHA E-beam Evaporator	√	√	NO
cmp	Strausbaugh CMP (tech required for chuck change)	√	√	NO
cpa	CPA three-target sputterer	√	√	See Note
cpd	Critical Point Drying Apparatus	√	√	NO
crestec	Electron beam lithography system	√	√	NO
dektak	Dektak Surface Profilometer	√	√	√
disco	Disco DAD3240 Automatic Dicing Saw	√	√	√
dw	Davis & Wilder Evaporator	√	√	NO
edwards	Edwards Sputter System	√	√	NO
edwardseb3	Edwards 306 E-Beam System	√	√	NO
ellips	Gaertner Stokes Ellipsometer	√	√	√
fei-sem	FEI Nova NanoSEM 650 SEM	√	√	NO
flexus	Tencor Flexus FLX2320 Stress Gauge	√	√	See Note
gartek	Gartek sputterer	√	NO	NO
gcaws2	GCA 6200 a 10X G-Line wafer stepper	√	NO	NO
gcaws6	GCA 8500 a 5X I-line wafer stepper	NO	√	NO

Equipment	Description	4"	6"	8"
gnpcmp	G&P Technology POLI-500 DC CMP machine	√	√	See Note
headway1	Headway spinner in Msink3	√	√	√
headway2	Headway Spinner - Standalone	√	√	√
heatpulse1	AG Heatpulse 210T rapid thermal annealer (GaAs)	√	NO	NO
heatpulse2	AG Heatpulse 610 rapid thermal annealer (Si)	√	NO	NO
heatpulse3	AG Heatpulse 610 rapid thermal annealer (silicide)	√	√	NO
heatpulse4	AG Heatpulse 610 rapid thermal annealer (Si)	√	√	NO
heatpulse8	AG Heatpulse AW810M rapid thermal annealer (Si)	√	√	√
hummer	Gold evaporator on SEM samples	√	NO	NO
iondep	Ionbeam deposition system	√	√	NO
ionmill	Veeco ion mill	√	NO	NO
irscope	Infrared Video Camera (wafer voids inspection)	√	√	√
iv	I-V probe station	√	√	√
kruss	Kruss Contact Angle Analyzer	√	√	√
ksaligner	Karl Suss Mask/Bond Aligner	√	√	NO
ksba6	Karl Suss Bond Aligner	√	See Note	NO
ksbonder	Karl Suss Wafer Bonder (chuck change by tech)	√	See Note	NO
lam6	Lam 4526 Oxide Etch oxide and nitride films	See Note	√	NO
lam7	Lam Research 9626 Aluminum Etch	See Note	√	See Note
lam8	9426 Lam Research TCP MOS Poly Etch	See Note	√	See Note
leo	Leo Scanning Electron Microscope	√	√	NO
linewidth	Line width measuring system	√	√	√
matrix	Matrix 106 Resist Remover	√	√	NO
marix-etch	Matrix 303 plasma etcher	See Note	√	NO
memscope	MEMS Microscope	√	√	√
microscope	all microscopes	√	√	See Note
nanoduv	Nanospec/DUV Microspectrophotometer	√	√	See Note
nanospec	Nanospec AFT film thickness measuring system	√	√	See Note
nrc	NRC evaporator	√	See Note	NO
oxford	Oxford Plasmalab System 100 Gas etcher	√	√	NO
oxford2	Oxford Plasmalab 80 PECVD	√	√	See Note
p5000	Applied P5000 TEOS PECVD	See Note	√	NO
parylene	Specialty Coating Systems PDS2010	√	√	See note
picosun	Picosun Atomic Layer Deposition (ALD)	√	√	NO
pqecr	Plasma Quest ECR PECVD	√	√	NO
primaxx	Primaxx SPTS uEtch HF Vapor Etcher	√	√	√
primeoven	Yield Engineering Systems YES – 5	√	√	√

Equipment	Description	4"	6"	8"
ptherm	Plasmatherm reactive ion etcher	√	√	√
quintel	Quintel Q4000-6IR Contact Aligner	√	See Note	NO
randex	Randex sputtering system	√	See Note	NO
reichert	Reichert Polylite inspection microscope	√	√	√
sca	Surface Charge Analyzer	√	√	√
semi	Semigroup plasma etcher	√	√	√
msink1	Photoresist strip & pre-furnace metal clean sink	√	√	√
msink2	Photoresist strip (general purpose) sink	√	√	NO
msink3	Manual spin coat & develop sink	√	√	√
msink4	KOH and TMAH silicon etch sink	√	√	NO
msink5	HF release operation sink	√	√	NO
msink6	VLSI MOS clean (pre -furnace clean) sink	√	√	√
msink7	General use VLSI sink	√	√	NO
msink8	VLSI non-MOS clean sink	√	√	√
msink16	General purpose sink	√	√	√
msink18	General purpose sink	√	√	√
sinkcmp	Post CMP cleaning sink	√	√	√
sinkplate	Fumehood for electroplating	√	√	√
sopra	Sopra Variable Angle/Frequency Ellipsometer	√	√	See Note
sp3	sp3 CVD Diamond Coating System	√	√	See Note
sts1	ICP pulsed gas deep silicon etcher (DRIE)	See Note	√	NO
sts2	ICP pulsed gas deep silicon etcher (DRIE)	See Note	√	See Note
sts-oxide	APS deep oxide etch	See Note	√	See Note
svgcoat1	SVG 8626/36 Coater/Bake, front track	NO	√	NO
svgcoat2	SVG 8626/36 Coat, rear track	√	NO	NO
svgcoat3	SVG 8626 thick resist coater	√	NO	NO
svgcoat6	SVG8800 coat track	NO	√	NO
svgdev1	SVG 8632 CTD developer - 4" track	NO	√	NO
svgdev2	SVG 8632 CTD developer - 6" track	√	NO	NO
svgdev6	SVG8800 Develop track	NO	√	NO
technics-c	Technics plasma descum or ash processes	√	√	√
tensiometer	Sigma 701 thin film tension meter	√	√	√
topgun	s-gun sputtering system	√	NO	NO
tystar1	Tystar 6" Wet/Dry Oxidation (Gate oxidation)	√	√	NO
tystar2	Tystar 6" Wet/Dry Oxidation	√	√	NO
tystar3	Tystar 6" Wet/Dry Oxidation	√	√	NO

Equipment	Description	4"	6"	8"
tystar4	Tystar 6" Wet/Dry Oxidation	√	√	NO
tystar5	Tystar 6" Wet/Dry Oxidation	√	√	√
tystar6	Tystar 6" BCl3	√	√	√
tystar7	Tystar 6" POCL3	√	√	√
tystar9	Tystar LPCVD Nitride/HTO	√	√	NO
tystar10	Tystar LPCVD Doped Poly	√	√	NO
tystar11	Tystar LPCVD Doped/Undoped LTO	√	√	NO
tystar12	Tystar LPCVD Doped/Undoped LTO	√	√	NO
tystar13	Tystar 6" POCL3	√	√	NO
tystar14	Tystar 6" Solid-Source Boron	√	√	NO
tystar15	Tystar 6" LPCVD Silicon Carbide	√	√	NO
tystar16	Tystar 6" LPCVD Doped Poly	√	√	NO
tystar17	Tystar LPCVD Low Stress Nitride/HTO	√	√	NO
tystar18	Tystar 6" MOS Sinter	√	√	NO
tystar19	Tystar LPCVD Si/Ge for Device	√	√	NO
tystar20	Tystar Si/Ge LPCVD Si/Ge for MEMS	√	√	NO
ultek	E-Beam evaporator	√	NO	NO
uvbake	Fusion Photostabilization System	√	√	NO
uvscope	Leica I-line Microscope	√	√	√
vacoven	YES (Yield Eng. Systems) 450PBS-29	√	√	√
westbond	West Bond 7400B wire bonder, Al	√	√	√
westbond2	West Bond 7400B wire bonder, Au	√	√	√
wyko	Wyko Optical Profilometer	√	√	√
xdif	X-Ray Diffractometer	√	√	See Note
xetch	XeF2 Bulk Silicon Etcher	√	√	No

Note:

afm2	4" and 6" capable and there is enough clearance for an 200mm wafer to fit on the turntable
aln2	4" wafers are processed on a specially made 6" handle wafer, 8"capable upon complete change over
asml300	6" capable, also 4" and 8" wafer processing is possible with handler & pucks set up change (2hrs)
centura 3-5	6" capable, 4" on carrier wafer, major hardware change is needed to enable 8" processing (load lock)
centura-MxP+	6" capable, 4" on carrier wafer, major hardware change is needed to enable 8" processing (load lock)
centura-met	6" capable, 4" not common-possible on proper carrier wafer, major hardware change is needed for 8"
centura-stri	6" capable, 4" not common-possible on proper carrier wafer, major hardware change is needed for 8"
cpa	4", 6" capable and 8"compatible, will need an 8" pallet to process a single 8" wafer (easy to fabricate)
gnpcmp	4" and 6" capable, will requires additional hardware for polishing head to enable 8" (vendor manual)
flexus	4" and 6" capable, stage can take an 8" wafer with limited scan length on such larger substrate
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.
lam6	6" capable, 4" can be processed with a 6" handle wafer. No 8" upgrade on this particular machine
lam7	4" wafers can be processed with a 6" handle wafer. 8" capable, if complete change over is done

lam8	4" wafers can be processed with a 6" handle wafer. 8" capable, if complete change over is done
matrix-etch	6" capable, however the tool can be converted to accept 4" within an hour removing some stage pins
microscope	4" and 6" capable need hardware (stage) change to accommodate 8" substrates
nanospec	4" and 6" capable, can support 8", if the stage in changed or machine to accept 8" wafer
nanoduv	4" and 6" capable, can support 8", if the stage in changed or machine to accept 8" wafer
nrc	4'", 6" with wafer holder change (top of chimney), 8" not possible due to larger shutter size required
oxford2	4" and 6" capable, equipped to process 8", however film thickness uniformity will suffer on 8" wafers
parylene	4" and 6" capable will need a new fixture to accommodate 8" substrate
P-5000	4" wafers can be processed with a 6" pocket wafer or handle wafer. No 8" upgrade
quintel	4" capable, will require 6" chuck and 7" mask holder to enable 6" processing. No 8" upgrade
randex	Sputter etch is available for 4" wafers only. Sputter deposition is available for both 4"'and 6".
sopra	4" and 6" capable, limited site positioning for larger substrates due proximity of stage to front panel
sp3	4" and 6" capable, will need a new graphite chuck to support 8" processing
sts1	4" wafers can be processed with a 6" handle wafer. No 8" upgrade possible
sts2	4" wafers can be processed with a 6" handle wafer. 8" capable, if complete change over is done
sts-oxide	4" wafers can be processed with a 6" handle wafer. 8" capable, if complete change over is done.
Xdif	4" and 6" capable, will need new fixturing for 8"- severely pushing limits of mechanics for 8"
4ptprb	4" and 6" capable, if we elevate the turntable with a plug extension and elevate the guide, 200mm wafers will fit on the 4 point probe

Revision History

W. Flounders, August 2004 - Initial write up

Sia Parsa, 11/19/12 – Added new tools, also included the 8" upgradability notes for selected tools in the lab