

Lab	Process Area	Where	CORAL Name	It is:	It does:	Maker/Model	Units	per:(self-run)	if staff
EBL	e-litho	24-041	Elixion	125 keV, hi-res e-beam writer	e-beam write	Elixion F-125	8	hour	9
EML	Wet	39-5	acid-hood-EML	fume hood	acid wet etch	Solitec	2	wafer	12
EML	Photo	39-5F 1-South Photo	coater-EML	spinner	coats PR	Canver 4386	8	hour	4
EML	Photo	39-5F 3-South Packaging	hotpress	hydraulic press	applies loads ~100 kN, electrically heats to ~340 C; used on thermoplastic films (eg. PMMA)	Hewlett-Packard	2	run	12
EML	Metrology	39-5	parametric-lesler	parametric-lesler	measures device characteristics	Plasmatherm SL-700	8	hour	4
EML	Wet	39-5F 1-South Photo	photo-hood-EML	fume hood	solvent wet etch		7	wafer+thickness	14
EML	PECVD-RIE	39-5F 3-South Packaging	plasmatherm	dual chamber PECVD-RIE	etches & deposits dielectrics; heated chuck		8	run	12
EML	Wet	39-5F 1-South Photo	SolventHood-EML	fume hood for solvents, no drain	solvent chemistry		2	hour	4
ICL	Metrology	39-2F 1-South Metrology	4-pt-probe	resistivity measurement system	resistivity measurement	Thermo 10K	25	run+steam	39
ICL	Diffusion	39-2F 4-North Diffusion	5A-GateOx	atmosph. diffusion tube	for gate oxide, CMOS only	Thermo 10K	25	run+steam	39
ICL	Diffusion	39-2F 4-North Diffusion	5B-Anneal	atmosph. diffusion tube	for annealing, including Concept1 films	Thermo 10K	25	run+steam	39
ICL	Diffusion	39-2F 4-North Diffusion	5C-FieldOx	atmosph. diffusion tube	for oxidation	Thermo 10K	25	run+steam	39
ICL	Diffusion	39-2F 4-North Diffusion	5D-ThickOx	atmosph. diffusion tube	for oxidation, CMOS only	Thermo 10K	65	run+70um	74
ICL	Diffusion	39-2F 4-North Diffusion	6A-nPoly	low P diffusion tube	LPCVD polysilicon; CMOS only	Thermo 10K	9	hour	12
ICL	Diffusion	39-2F 4-North Diffusion	6D-Nitride	low P diffusion tube	LPCVD stoichiometric Si nitride	Veeco D3100	2	hour	4
ICL	Metrology	39-2F 2-North Etch	AFM	Atomic Force Microscope	surface topology	Cambridge Nanotech	7	wafer+thickness	21
ICL	Deposition	39-2F 1-North Deposition	ALD	atomic layer dep	atomic layer dep: Al,Hf,Ti ox, TiN (precursors =Al, Hf, W, H2O, NH3, O3)	Oxford FlexAl	7	wafer+thickness	21
ICL	Deposition	39-2F 1-South Metrology	ALD-Oxford	plasma-assisted atomic layer dep	plasma-ALD: Al,Hf,Ti ox;W,Ti nitr (precursors=Al, Hf, W, Ti, Si, H2O, O2, NH3, O3)	AMAT Precision 5000	2	run	4
ICL	Etch	39-2F 2-South DepAndEtch	AME5000	plasma etcher	Chamber A: SiO2, BPSG, LTO; Chamber B: Si nitride, poly	Matrix 106	7	wafer+thickness	14
ICL	Photo	39-2F 3-South Photo	asher-ICL	plasma asher	strip PR	Novellus Concept 1	1	wafer	3
ICL	Deposition	39-2F 1-North Deposition	concept1	dielectric plasma dep	deposits oxide, nitride, TEOS	AMAT Centura 5200	3	wafer+thickness	14
ICL	Metrology	39-2F 1-South Metrology	cv	CV bridge	measures capacitance vs voltage	Disco DAD-2H6T	20	wafer+material	27
ICL	Deposition	39-2F 4-South Diffusion	DCVD	dielectric plasma dep	deposits oxide, nitride	Angstrom Engineering EvoVac	10	wafer+material	20
ICL	Packaging	39-5F 3-South Packaging	diesaw	diesaw	dices wafers	AMAT Endura	32	run+material	32
ICL	Deposition	39-2F 2-South Etch	eBeam-EVO	metal evaporator	Al, Ir, Pt, Co, W, Er, Ti, Mo, SiO2, Si, Ta	AMAT Centura 5200	6	wafer	9
ICL	Deposition	39-2F 1-North Deposition	endura	metal sputtering system	sputters Ti, TiN, Al, AlSi	Nikon NSR-2005i9 i-line(365nm)	7	wafer+thickness	14
ICL	Deposition	39-528	epi-Centura	Ultra Hi-vac chem vapor dep	grows Si & SiGe epilayers	LAM 490B	25	run	32
ICL	Photo	39-2F 3-North Photo	i-stepper	wafer stepper	patterns wafers, 5x reduction, 0.5 um resolution	LAM 590B	25	run+steam	39
ICL	Etch	39-2F 2-North Etch	LAM490B	plasma etcher	for Si & nitride [gases=C2F6,SF6,Ci2,He,O2]	Semifab WPS-400	25	run	32
ICL	Etch	39-2F 2-North Etch	LAM590-ICL	plasma etcher	for oxide [gases=CHF3,CF4,He,O2]	Semifab WPS-400	7	wafer+thickness	14
ICL	Wet	39-2F 3-South Photo	nitrEtch-HotPhos	wet station	wet etches nitride (1st tank)	Oxford Plasmalab System 100	5	hour	10
ICL	Wet	39-2F 3-South Photo	oxEtch-BOE	wet station	wet etch oxide	Tencor/Prometrix P-10	25	run	32
ICL	PECVD-RIE	39-2F 1-NorthExtension Deposition	Oxford-100	plasma etch/dep	for Si, nitride, TEOS [gases=C2F6,SF6,Ci2,He,O2; NH3,SiH4]	Semifab WPS-400	25	run	32
ICL	Metrology	39-2F 1-South Metrology	P10	profilometer	measures surface roughness	Wyko NT3300	2	wafer	4
ICL	Wet	39-2F 2-South DepAndEtch	premetal-Piranha	wet station	for piranha & HF dip	LAM 9600	25	run	39
ICL	Photo	39-2F 3-South Photo	pTrack	wafer track	coats and develops photoresist	Annealsys150	4	wafer	5
ICL	Etch	39-2F 1-Hallway Etch	rainbow	plasma etcher	for metal (Al, Ti) [gases=SF6,Ci2,BCi3,CHCl3,N2]	Annealsys	9	hour	12
ICL	Diffusion	39-2F 4-South Diffusion	rca-ICL	wet station	RCA clean	Zeiss Supra 40	5	hour	10
ICL	Diffusion	39-2F 1-South Diffusion	RTA-NoMetal	rapid thermal annealer	anneals samples without metal	Prometrix (now KLA-Tencor) SM-300	25	run	32
ICL	Diffusion	39-2F 3-South Diffusion	RTA-pieces	rapid thermal annealer	non-Au, accepts 3" w/ & pieces	fume hood	5	hour	10
ICL	Metrology	39-2F 3-North Photo	semZeiss	low-V scanning electron microscope	scanning electron imaging	Tencor/Prometrix UV-1280	65	run+70um	74
ICL	Metrology	39-2	SM-300	optical thin film measurement tool (for unpatterned wafers)	film thickness measurements	SVG/Thermo 7000	5	hour	10
ICL	Wet	39-5F 2-North	TMAH-KOHhood	wet bath	KOH & TMAH etching	Wyko NT3300	25	run	32
ICL	Metrology	39-2F 1-South Metrology	UV1280	spectroscopic ellipsometer	measures film thickness (single, stacks, PR)	MRL 718	25	run+steam	39
ICL	Diffusion	39-2F 4-North Diffusion	VTR	vertical thermal reactor	low-stress nitride	MRL 718	65	run+70um	74
ICL	Metrology	39-2F 1-South Metrology	wykolCL	non-contact profiler	surface topology; up to 500um vertical scan	MRL 718	25	run	32
TRL	Wet	39-5F 3-South Packaging	ZDtransfer-platingHood	wet station	substrate transfer of graphene flakes	MRL 718	25	run+steam	39
TRL	Diffusion	39-4F Entry Diffusion	A1-GateOx	atmosph. diffusion tube	for gate oxide	MRL 718	25	run+steam	39
TRL	Diffusion	39-4F Entry Diffusion	A2-WetOxBond	atmosph. diffusion tube	wafer bonding	MRL 718	25	run+steam	39
TRL	Diffusion	39-4F Entry Diffusion	A3-Sinter	atmosph. diffusion tube	CMOS metal sintering	MRL 718	25	run	39
TRL	Diffusion	39-4F Entry Diffusion	A4-III-Vanneal	atmosph. diffusion tube	anneal III-Vs; has O2	MRL 718	25	run	39
TRL	Wet	39-4F Main-South	acid-hood	wet station	wet etch	Laminaire	25	run	32
TRL	Deposition	39-4F Deposition	AJA-TRL	sputterer	Al, Cr, Cu, Au, Ag, Ti	AJA ATC	20	hour+wafer+material	30
TRL	Photo	39-4F Main-South	asherMatrix-TRL	plasma photoresist stripper (single-wafer)	photoresist stripper	Matrix 106	2	run	4
TRL	Photo	39-4F Main-North	asher-TRL	plasma photoresist stripper (2 chambers)	photoresist stripper	Branson	2	run	4
TRL	Diffusion	39-4F Entry Diffusion	B1-Au	atmosph. diffusion tube	gold exposure	MRL 718	25	run+steam	39
TRL	Diffusion	39-4F Entry Diffusion	B2-Ox-alloy-Poly	low pressure diffusion tube	LP diffusion tube; dep: Poly-Si on Au w/ annealing	MRL 718	65	run+70um	74
TRL	Diffusion	39-4F Entry Diffusion	B3-DryOx	atmosph. diffusion tube	annealing	MRL 718	25	run	39
TRL	Diffusion	39-4F Entry Diffusion	B4-Poly	low pressure diffusion tube	LPCVD polysilicon	MRL 718	65	run+70um	74
TRL	Deposition	39-4F External-Photo	Balzer-Elixion	small sputterer	metal coats samples for e-beam imaging	Balzer	8	hour+material	12
TRL	Photo	39-4F Photo-North	coater	spinner	coats PR	Solitec 5110	2	wafer	10
TRL	Metrology	39-4F Main-North	dek-NoAu	profilometer	measures surface roughness, no-gold wafers only	Sloan Dektak II	2	hour	4
TRL	Metrology	39-4F Photo-South	dektak-XT	profilometer	measures surface roughness	Sloan Dektak II	2	hour	4
TRL	Photo	39-4F Photo-North	develoP-Brewer	spin developer	develops PR	Brewer Science Cee-200CBX	2	wafer	10
TRL	Deposition	39-4F Deposition	eBeamAu	metal evaporator	Au, Ag, Al, Cr, Au, Ge, Co, Pt, Si, Ti, Zr; W, Er, Mo, SiO2, Ta, Pd, Ni, Ge, Sn	Temescal VES2550	20	run+material	27
TRL	Deposition	39-4F External-Deposition	eBeamFP	metal evaporator	Au, Al, Cr, Pt, Ti	Temescal FC2000	20	run+material	27
TRL	Metrology	39-4F Main-North	ellipsometer-TRL	ellipsometer	measures film thickness & index	Gaerther	2	hour	4
TRL	Photo	39-4F Bonding	EV501	wafer aligner/bonder	aligns & bonds wafers (fusion,anodic,thermo-compression)	Electronic Visions	6	wafer	9
TRL	Photo	39-4F Bonding	EV620	wafer aligner/bonder	aligns & bonds wafers (fusion,anodic,thermo-compression)	Electronic Visions	6	wafer	9
TRL	Photo	39-4F Photo-North	EV-LC	mask aligner	contact, w/IR	Electronic Visions 620	6	wafer	9
TRL	Metrology	39-4F Main-North	Filmetrics-TRL	thin film measurement system	measures film thickness	Filmetrics F-20	1	hour	2
TRL	Metrology	39-4F Main-North	FLX	non-contact profiler (58" w/)	measures wafer bow	KLA-Tencor FLX	5	hour	10
TRL	Deposition	39-428	GrapheneBlackMagic	plasma chamber	deposits carbon nanotubes from acetylene	Aixtron	25	run	32
TRL	Wet	39-4F Hallway	Greenflo	wet station	wet etching; green & red sides	Raytek Tech Greenflo	25	run	32
TRL	Metrology	39-4	Half-probe	probe-lesler	electrical characterization	Rucker/Kolls 1032-HP4062B	2	hour	4
TRL	Photo	39-4F External-Photo	Heidelberg	direct-write laser	laser-writes on photoresist	Heidelber DWL-66	10	hour	16
TRL	Photo	39-4F Photo-North	HMDS-TRL	bake oven	for hexamethyldisilazane (an adhesion promoter)		0	wafer	10
TRL	Photo	39-4F Photo-South	hotplate1	hotplate	for post & pre-baking SU8 & PZT at <=300oc		1	wafer	2
TRL	Photo	39-4F Photo-South	hotplate2	hotplate	for post & pre-baking SU8 & PZT at <=300oc		1	wafer	2
TRL	Photo	39-4F Photo-South	hotplate300	hi-T hotplate	for post & pre-baking SU8 & PZT at <=400oc		1	wafer	2
TRL	Metrology	39-4F Main-North	IV-probe	curve tracer w/probe	measures IV characteristics	Tektronics	2	hour	4
TRL	Etch	39-4F Main-North	LAM590-TRL	plasma etcher	for oxide [gases=CHF3,CF4,He,O2]	LAM 590	7	wafer	14
TRL	Photo	39-4F Photo-South	MLA-150	mask-less exposure	direct write	Heidelberg MLA-150	14	hour	28
TRL	Metrology	39-4F Bonding	nanospec	thin film measurement system	measures film thickness	Nanometrics AFT 010-0180	2	hour	4
TRL	Photo	39-4F Photo-North	OA-flood	UV flood exposure	flood exposes for Image Reversal	OAI LS30	0	wafer	0
TRL	Deposition	39-4F Main-North	parylene	parylene coater	coats wafers w/parylene	SCS Labcoater2	5	wafer	10
TRL	Deposition	39-562	pentacene	pentacene system	deposits pentacene		5	wafer	10

TRL	Wet	39-4F Main-North	photo-wet-Au	wet station	wet etch photoresist	Semifab WPS-800	25	run	32
TRL	Wet	39-4F Main-North	photo-wet-l	wet station	wet etch photoresist	Semifab WPS-800	25	run	32
TRL	Wet	39-4F Main-North	photo-wet-r	wet station	wet etch photoresist	Semifab WPS-800	25	run	32
TRL	Etch	39-4F Main-North	plasmaquest	ECR-RIE	etches dielectrics on III-Vs, polyimide, etc	Plasmaquest Series 11 Model 145	7	wafer+thickness	14
TRL	Photo	39-4F External-Photo	PMMAspinner	PMMA spinner	coats wafers w/PMMA	Cee Equipment Co. (Brewer Science); model Blue DDC-146C	3	wafer	6
TRL	Photo	39-4F Photo-North	postbake	oven	to bake photoresist after developing		0	wafer	3
TRL	Photo	39-4F Photo-North	prebakeovm	oven	to bake photoresist before exposure		0	wafer	3
TRL	Deposition	39-4F Photo-South	PZTcoater	PZT coater	deposits PZT	Specialty Coating Systems, Spin Coater 670	5	wafer	10
TRL	Deposition	39-4F Photo-South	PZTfurnace	PZT furnace	anneals PZT	Thermolyne Furnace, 6000	5	run	7
TRL	Diffusion	39-4F Main-South	rca-TRL	wet station	RCA clean		25	run	39
TRL	Diffusion	39-4F Main-South	RTA-HIT	rapid thermal annealer	for III-Vs	Annealsys150	4	wafer	5
TRL	Etch	39-4F Main-North	SAMCO	ICP-RIE	etches dielectrics on III-Vs	SAMCO 200iP	7	wafer+thickness	14
TRL	Wet	39-4F Photo-North	SolventHood-TRL	fume hood for solvents	Soaking of samples, metal liftoff		25	run	32
TRL	Etch	39-4F Main-South	sts1	Si deep trench etcher	etches deep features in Si (4" wafers)	STS/Multiplex ICP non-MESC	7	wafer+thickness	14
TRL	Etch	39-4F Main-South	sts2	Si deep trench etcher	etches deep features in Si (6" wafers)	STS/Multiplex ICP MESC	7	wafer+thickness	14
TRL	Deposition	39-4F Entry Diffusion	sts-CVD	dielectric plasma dep	deposits oxide, nitride, Si carbide	STS/Multiplex PECVD	7	wafer+thickness	14
TRL	Etch	39-4F Main-South	sts-Pegasus	Si deep trench etcher	etches deep features in Si (6" wafers)	STPS Pegasus ICP	7	wafer+thickness	14
TRL	Photo	39-4F Photo-South	SU8oven	oven	to bake SU8		0	wafer	0
TRL	Photo	39-4F Photo-South	SU8spinner	oven	to coat with SU8		3	wafer+material	6
TRL	Photo	39-4F Bonding	TBM-8	alignment measurement tool	measure wafer alignment, pre-bonding	Electronic Visions	2	hour	4
TRL	Etch	39-4F Photo-South	UVozone-Au	ozone clean plate	removes organics w/ozone created by UV light		2	hour	4
TRL	Photo	39-4F Photo-South	varTemp	oven	to bake photoresist; temp can be changed		0	wafer	0
TRL	Metrology	39-4F Main-North	WYKO	non-contact profiler	surface topology, up to 500um vertical scan	Wyko NT9800	5	hour	10
TRL	Etch	39-4F Main-South	XeF2	XeF2 vapor system	etches Si w/XeF2 for structural release	Pelchem	20	hour	25