

Lab	Process / Where	CORAL Name	It is:	It does:	Maker/Model	Units	per:(self-run)	if staff
EBL	e-beam w 24-041	Elionix	125 keV, hi-res	e-beam write	Elionix F-125	10 hr		10
EML	wet pecvd-rie	acid-hood-EML	fume hood	acid wet etch		8 run		12
EML	MOCVD deposition	ALD-EML	atomic layer de	atomic layer dep: Al,Hf,Ti ox,	Cambridge Nanotech	3 wafer+thicknes		14
EML	diffusion metal dep	anneal-furnace	tube furnace	for annealing, sintering, etc	Lindberg STF55666C	8 hr		12
EML	photo photo	asher-EML	plasma photore	photoresist strip		2 run		4
EML	metal dep metal dep	BalzerSputterer	sputterer	Au dep for SEM imaging	Balzer Union SCD 040	8 hr + mat		12
EML	diffusion metal dep	Box-Furnace	furnace	anneals, bakes		8 hr		12
EML	photo photo	coater-EML	spinner	coats PR	Solitec	2 wafer		4
EML	metrology hall	dektak-EML	profilometer	measures surface roughness	Sloan Dektak II	8 hr		12
EML	metal dep metal dep	eBeam-AJA	metal evaporat	Au,Ag,Al,Cr,AuGe,Co,Pt,Si,Ti,Z	AJA ATC-2036	30 run + mat		37
EML	metrology Resonetics rm	filmetrics	thin film measu	measures film thickness	Filmetrics F20	2 hr		4
EML	Photo-EM Au Bonder Rm	hotpress	hydraulic press	applies loads ~100 kN, electric	Carver 4386	8 hr		12
EML	photo photo	MA4	mask aligner	contact lithography	Karl Suss MA-4	6 wafer		9
EML	diffusion Resonetics rm	OxidationTube	tube furnace	wet & dry ox, anneals, bakes	Lindberg	8 hr		12
EML	metrology metrology	parametric-tester	parametric-te	measures device characteristic	Hewlett-Packard	2 hr		4
EML	wet photo	photo-hood-EML	fume hood	solvent wet etch		8 run		12
EML	pecvd-rie pecvd-rie	plasmatherm	dual chamber P	etches & deposits dielectrics;	Plasmatherm SL-700	7 wafer+thicknes		14
EML	diffusion metrology	RTA-EML	rapid thermal ar	rapid thermal anneal	AG Associates Heatpulse 410	4 wafer		5
EML	metrology metrology	semNeo	inspection SEM	≤3" samples, 20kX, ~0.2 um r	Joel/Nikon Neoscope JCM-5000	9 hr		12
EML	wet photo	SolventHood-EML	fume hood for	solvent chemistry		8 run		12
EML	metal dep metal dep	SputtererAJA	sputterer	Al, Cr, Cu, etc	AJA Orion 5	7 wafer+mat.		14
EML	diffusion Au Bonder Rm	vac-oven	vacuum oven	for annealing, sintering, etc in	TM Vacuum Products Model SS80	8 hr		12
ICL	metrology metrology	4-pt-probe	resistivity meas	resistivity measurement		2 hr		4
ICL	diffusion diffusion	5A-GateOx	atmosph. diffus	for gate oxide, CMOS only	Thermco 10K	25 run+steam		39
ICL	diffusion diffusion	5B-Anneal	atmosph. diffus	for annealing, including Conce	Thermco 10K	25 run+steam		39
ICL	diffusion diffusion	5C-FieldOx	atmosph. diffus	for oxidation	Thermco 10K	25 run+steam		39
ICL	diffusion diffusion	5D-ThickOx	atmosph. diffus	for oxidation, CMOS only	Thermco 10K	25 run+steam		39
ICL	diffusion diffusion	6A-nPoly	low P diffusion	LPCVD polysilicon; CMOS only	Thermco 10K	65 run+70/um		74
ICL	diffusion diffusion	6B-Poly	low P diffusion	LPCVD thick & P-doped polysil	Thermco 10K	65 run+70/um		74
ICL	diffusion diffusion	6C-LTO	low P diffusion	LPCVD Low Temperature Oxid	Thermco 10K	65 run+70/um		74
ICL	diffusion diffusion	6D-Nitride	low P diffusion	LPCVD stoichiometric Si nitrid	Thermco 10K	65 run+70/um		74
ICL	metrology photo	AFM	Atomic Force M	surface topology	Veeco D3100	9 hr		12
ICL	MOCVD deposition	ALD	atomic layer de	atomic layer dep: Al,Hf,Ti ox,	Cambridge Nanotech	3 wafer+thicknes		14
ICL	MOCVD metrology	ALD-Oxford	plasma-assistec	plasma-ALD: Al,Hf,Ti ox;W,Ti r	Oxford FlexAl	3 wafer+thicknes		14
ICL	plasma et metallizat'n	AME5000	plasma etcher	Chamber A: SiO2, BPSG, LTO;	AMAT Precision 5000	7 wafer+thicknes		14
ICL	photo photo	asher-ICL	plasma asher	strip PR	Matrix 106	2 run		4
ICL	photo photo	coater6	wafer track	coats PR	SVG 8860	2 wafer		4
ICL	pecvd deposition	concept1	dielectric plasm	deposits oxide, nitride, TEOS	Novellus Concept 1	7 wafer		14

ICL	metrology	metrology	cv	CV bridge	measures capacitance vs voltage	Boonton	1 wafer	3
ICL	pecvd	diffusion	DCVD	dielectric plasm	deposits oxide, nitride	AMAT Centura 5200	7 wafer+thickness	14
ICL	pkg	39-558	diesaw	diesaw	dices wafers	Disco DAD-2H/6T	3 wafer+cut	6
ICL	pkg	39-558	diesaw-3240	high precision d	dices wafers, ≤8"	Disco 3240	3 wafer+cut	6
ICL	metal de	metallizat'n	eBeam-EVO	metal evaporat	Al, Ir, Pt, Co, W, Er, Ti, Mo, Si	Angstrom Engineering EvoVac	7 wafer+mat	14
ICL	metal de	AME rm	endura	metal sputterin	sputters Ti, TiN, Al, AlSi	AMAT Endura	7 wafer+mat	14
ICL	UHCVD	39-528	epi-Centura	Ultra Hi-vac che	grows Si & SiGe epilayers	AMAT Centura 5200	32 run+mat	32
ICL	CMP	39-558	GnP	chemo-mechani	chemo-mechanical polishing	GnP Poli-400L	7 wafer+slurry	14
ICL	pkg	EML Metro	goldwire	gold-ball wire b	wire bonder	Kulicke&Soffa 4124	7 hr	14
ICL	photo	photo	HMDS-ICL	bake oven	for hexamethyldisilazane (an a	Yield.Eng.Syst.3/10	0 wafer	10
ICL	photo	photo	i-stepper	wafer stepper	patterns wafers, 5x reduction,	Nikon NSR-2005i9 i-line(365nm)	6 wafer	9
ICL	wet	packaging	KOH-Au	wet station	Au-bearing KOH & Cu plating	Semifab WPS-400	25 run	32
ICL	plasma et	etching	LAM490B	plasma etcher	for Si & nitride [gases=C2F6,;	LAM 490B	7 wafer+thickness	14
ICL	plasma et	etching	LAM590-ICL	plasma etcher	for oxide [gases=CHF3,CF4,H	LAM 590B	7 wafer+thickness	14
ICL	metrology	photo	microscope-ICL	inspection micr	optical imaging	Nikon Optiphot 88	2 hr	4
ICL	wet	photo	nitrEtch-HotPhos	wet station	wet etches nitride (1st tank)	Semifab WPS-400	25 run	32
ICL	wet	photo	oxEtch-BOE	wet station	wet etch oxide	Semifab WPS-400	25 run	32
ICL	plasma et	AME rm	Oxford-100	plasma etch/de	for Si, nitride, TEOS [gases=C	Oxford Plasmalab System 100	7 wafer+thickness	14
ICL	metrology	metrology	P10	profilometer	measures surface roughness	Tencor/Prometrix P-10	5 hr	10
ICL	wet	near AME	premetal-Piranha	wet station	for piranha & HF dip	Semifab WPS-400	25 run	32
ICL	plasma et	etching	rainbow	plasma etcher	for metal (Al, Ti) [gases=SF6,;	LAM 9600	7 wafer	14
ICL	diffusion	diffusion	rca-ICL	wet station	RCA clean		25 run	39
ICL	diffusion	diffusion	RTA-Metal	rapid thermal ai	CMOS sample anneal	AG Associates Heatpulse 410	4 wafer	5
ICL	diffusion	diffusion	RTA-NoMetal	rapid thermal ai	anneals samples without meta	Annealsys150	4 wafer	5
ICL	diffusion	diffusion	RTA-pieces	rapid thermal ai	non-Au, accepts ≤3" wf & pie	Annealsys	4 wafer	5
ICL	metrology	photo	semZeiss	low-V scanning	scanning electron imaging	Zeiss Supra 40	9 hr	12
ICL	metrology		SM-300	optical thin film	film thickness measurements	Prometrix (now KLA-Tencor) SM-	5 hr	10
ICL	pkg	EML Metro	TMAH-KOHhood	wet bath	KOH & TMAH etching	fume hood	25 run	32
ICL	metrology	metrology	UV1280	spectroscopic ε	measures film thickness (singl	Tencor/Prometrix UV-1280	5 hr	10
ICL	diffusion	diffusion	VTR	vertical thermal	low-stress nitride	SVG/Thermco 7000	65 run+70/um	65
ICL	metrology	metrology	wykoICL	non-contact pr	surface topology; up to 500ur	Wyko NT3300	5 hr	10
TRL	wet	39-562	2Dtransfer-plating	wet station	substrate transfer of graphene flakes		25 run	32
TRL	diffusion	diffusion	A1-GateOx	atmosph. diffus	for gate oxide	MRL 718	25 run+steam	39
TRL	diffusion	diffusion	A2-WetOxBond	atmosph. diffus	wafer bonding	MRL 718	25 run+steam	39
TRL	diffusion	diffusion	A3-Sinter	atmosph. diffus	CMOS metal sintering	MRL 718	25 run	39
TRL	diffusion	diffusion	A4-III-Vanneal	atmosph. diffus	anneal III-Vs; has O2	MRL 718	25 run	39
TRL	wet	Etch Room	acid-hood	wet station	wet etch	Laminaire	25 run	32
TRL	metal de	metal'n	AJA-TRL	sputterer	Al, Cr, Cu, Au,Ag, Ti	AJA ATC	7 wafer+mat.	14
TRL	photo	metal'n	asherMatrix-TRL	plasma photo	photoresist stripper	Matrix 106	2 run	4

TRL	photo	Etch Room	asher-TRL	plasma photoresist stripper	Branson	2 run	4
TRL	diffusion	diffusion	B1-Au	atmosph. diffus gold exposure	MRL 718	25 run+steam	39
TRL	diffusion	diffusion	B2-Ox-alloy-Poly	low pressure di LP diffusion tube; de	Poly-Si MRL 718	65 run+70/um	74
TRL	diffusion	diffusion	B3-DryOx	atmosph. diffus annealing	MRL 718	25 run	39
TRL	diffusion	diffusion	B4-Poly	low pressure di LPCVD polysilicon	MRL 718	65 run+70/um	74
TRL	photo	39-430	Balzer-Elionix	small sputterer metal coats samples for e-bea	Balzer	8 hr+mat	12
TRL	pecvd	39-428	CCNT	plasma dep cha deposits carbon nanotubes fr	Cambridge Nano Instruments	7 wafer	14
TRL	photo	photo	coater	spinner coats PR	Solitec 5110	2 wafer+mat	10
TRL	metrology	Ballroom	dek-NoAu	profilometer measures surface roughness, i	Sloan Dektak	2 hr	4
TRL	metrology	Ballroom	dektak-XT	profilometer measures surface roughness	Sloan Dektak II	2 hr	4
TRL	photo	photo	develop-Brewer	spin developer develops PR	Brewer Science Cee-200CBX	2 wafer+mat	10
TRL	metal dep	metal'n	eBeamAu	metal evaporat Au,Ag,Al,Cr,AuGe,Co,Pt,Si,Ti,Z	Temescal VES2550	30 run+mat.	37
TRL	metal'n	39-428	eBeamFP	metal evaporat Au,Al,Cr,Pt,Ti,	Temescal FC2000	30 run+mat.	37
TRL	metrology	Ballroom	ellipsometer-TRL	ellipsometer measures film thickness & ind	Gaertner	2 hr	4
TRL	photo	photo	EV1	mask aligner contact, w/IR	Electronic Visions 620	6 wafer	9
TRL	photo	Diffusion in ICL	EV-LC	mask aligner contact, w/IR	Electronic Visions 620	6 wafer	9
TRL	photo	photo	EV501-620	wafer aligner/b aligns & bonds wafers (fusion,	Electronic Visions	6 wafer	9
TRL	metrology	Ballroom	Filmetrics-TRL	thin film measu measures film thickness	Filmetrics F-20	1 hr	2
TRL	photo	photo	fluoroscope	to check for ph checks for resist residue		1 wafer	3
TRL	metrology	Etch Room	FLX	non-contact pr measures wafer bow	KLA-Tencor FLX	5 hr	10
TRL	wet	Ballroom	Greenflo	wet station wet etching; green & red side	Reynolds Tech Greenflo	25 run	32
TRL	photo	39-430	Heidelberg	direct-write las laser-writes on photoresist	Heidelberg DWL-66	10 hr	16
TRL	photo	photo	hotplate1	hotplate for post & pre-baking SU8 & PZT at ≤300oC		1 wafer	2
TRL	photo	photo	hotplate2	hotplate for post & pre-baking SU8 & PZT at ≤300oC		1 wafer	2
TRL	photo	photo	hotplate300	hi-T hotplate for post & pre-baking SU8 & PZT at ≤400oC		1 wafer	2
TRL	photo	photo	HMDS-TRL	bake oven for hexamethyldisilazane (an adhesion promoter)		0 wafer	10
TRL	metrology	test area	hp-probe	prober-tester electrical characterization	Rucker/Kolls 1032-HP4062B	2 hr	4
TRL	metrology	Etch Room	IV-probe	curve tracer w/ measures IV characteristics	Tektronics	2 hr	4
TRL	rie	Etch Room	LAM590-TRL	plasma etcher for oxide [gases=CHF3,CF4,H	LAM 590	7 wafer	14
TRL	photo	photo	MA-6	mask aligner contact, w/IR	Karl Suss MA-6	6 wafer	9
TRL	photo	photo	MLA-150	mask-less expo direct write	Heidelberg MLA-150	6 wafer	9
TRL	metrology	photo	microscope-TRL	inspection micr w/Nomarski interference cont	Nikon	2 hr	4
TRL	metrology	Ballroom	nanospec	thin film measu measures film thickness	Nanometrics AFT 010-0180	2 hr	4
###	#REF!	Etch Room	parylene	parylene coater coats wafers w/parylene	SCS Labcoater2	5 wafer	10
TRL	plasma et	Etch Room	Pegasus	Si deep trench etches deep features in Si (6"	STPS Pegasus ICP	15 wafer+thicknes	30
###	#REF!	39-562	pentacene	pentacene syst deposits pentacene		5 wafer	10
TRL	wet	photo	photo-wet-Au	wet station wet etch photoresist	Semifab WPS-800	25 run	32
TRL	wet	photo	photo-wet-l	wet station wet etch photoresist	Semifab WPS-800	25 run	32
TRL	wet	photo	photo-wet-r	wet station wet etch photoresist	Semifab WPS-800	25 run	32

TRL	rie	Etch Room	plasmaquest	ECR-RIE	etches dielectrics on III-Vs, po	Plasmaquest Series 11 Model 145	7 wafer+thicknes	14
TRL	photo	photo	PMMAspinner	PMMA spinner	coats wafers w/PMMA	Cee Equipment Co. (Brewer Scien	3 wafer	6
TRL	photo	photo	postbake	oven	to bake photoresist after deve	Blue DDC-146C	0 wafer	3
TRL	photo	photo	prebakeovn	oven	to bake photoresist before exposure		0 wafer	3
TRL	spin dep	Etch Room	PZTcoater	PZT coater	deposits PZT	Specialty Coating Systems, Spin C	5 wafer	10
TRL	spin dep	Etch Room	PZTfurnace	PZT furnace	anneals PZT	Thermolyne Furnace, 6000	5 run	7
TRL	diffusion	Etch Room	rca-TRL	wet station	RCA clean		25 run	39
TRL	photo	EMLmetrology	Resonetics	laser ablation s	laser-writes on photoresist, gl	Resonetics LPX 200	10 hr	14
TRL	diffusion	Etch Room	RTA-HiT	rapid thermal ai	for III-Vs	Annealsys150	4 wafer	5
TRL	rie	Etch Room	SAMCO	ICP-RIE	etches dielectrics on III-Vs	SAMCO 200iP	7 wafer+thicknes	14
TRL	wet	DUV	Solvent-noAu	wet station	wet solvent for non-Au wafers		25 run	32
TRL	wet	DUV	Solvent-hood	wet station	wet solvent utility hood (eg, wafer dismount)		25 run	32
TRL	plasma et	Etch Room	sts1	Si deep trench	etches deep features in Si (4" STS/Multiplex ICP non-MESC		15 wafer+thicknes	30
TRL	plasma et	Etch Room	sts2	Si deep trench	etches deep features in Si (6" STS/Multiplex ICP MESC		15 wafer+thicknes	30
TRL	pecvd	diffusion	sts-CVD	dielectric plasm	deposits oxide, nitride, Si carb	STS/Multiplex PECVD	7 wafer+thicknes	14
TRL	plasma et	Etch Room	sts-Pegasus	Si deep trench	etches deep features in Si (6" Pegasus		15 wafer+thicknes	30
TRL	photo	photo	SU8oven	oven	to bake SU8		0 wafer	0
TRL	photo	photo	SU8spinner	oven	to coat with SU8		3 wafer+mat	6
TRL	metrolog	Ballroom	TBM-8	alignment mea	measure wafer alignment, pre	Electronic Visions	2 hr	4
TRL	Etch	Etch Room	UVozone-Au	ozone clean pla	removes organics w/ozone created by UV light		2 hr	4
TRL	Etch	Etch Room	UVozone-noAu	ozone clean pla	removes organics w/ozone created by UV light		2 hr	4
TRL	photo	photo	varTemp	oven	to bake photoresist; temp can be cahnged		0 wafer	0
TRL	metrolog	Etch Room	WYKO	non-contact pr	surface topology; up to 500ur	Wyko NT9800	5 hr	10
TRL	Etch	Etch Room	XeF2	XeF2 vapor sys	etches Si w/XeF2 for structur	Pelchem	20 hr	25