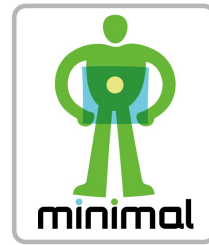


minimal[®] Fab

SEMICONDUCTOR MINI FAB FOR R&D
AND SERIAL PRODUCTION



Fab System Research Consortium

Fab System Research Consortium was established for developing Minimal Fab systems in Jan. 2010 and consists from 118 companies, 13 universities, 4 patent offices and 6 public organizations including AIST.

Concept of the Minimal Fab

- 1) Investment to IC Fab is 1/1,000 of conventional MEGA Fab.
- 2) $\phi 12.5$ mm wafer.
- 3) Dimension of each machine: W30×D45×H144cm.
- 4) Operating interfaces are fully unified.
- 5) No clean room is required by Minimal Shuttle.
- 6) More 70 Minimal tools are commercially available for sub-micron device production.

Minimal Shuttle



Minimal FAB tools



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Minimal Fab Equipment List

№	PROCESS 1	PROCESS 2	EQUIPMENT
1	CLEANING	SPM-Cleaning	Piranha Clean
2		RCA-Cleaning	RCA Station (A)
3		RCA-Cleaning	RCA Station (B)
4	PHOTOLITHOGRAPHY	Coating	Coater
5		Development	Developer
6		Exposure	Exposure (A)
7			Exposure (B)
8			Aligner
9	EB Exposure		
10	OXIDATION	Dry	Furnace
11			Focused Light Heating
12			Laser Heating
13			High Pressure Thermal Oxidation Furnace
14	Wet	Pyrogenic Oxidation	
15	DEPOSITION	PVD	Al Single Target Sputtering
16			Ion Beam Sputtering
17			Multi-Target Sputtering
18		CVD	LP-CVD (Poly-Si)
19			Focused Light Heating CVD
20			PE-CVD (TEOS)
21			PE-CVD (SiN)
22			PE-CVD (SiN)
23	ETCHING	Dry	Plasma Etcher (CCP)
24			Plasma Etcher (Micro Plasma)
25			Deep RIE
26			Metal Plasma Etcher
27		Wet	Oxide Wet Etcher
28			Al Wet Etcher
29			Cu Wet Etcher
30	DIFFUSION & IMPLANT	Ion Implantation	Ion Implanter
31		Coating	SOD Doping Station
32		Diffusion	Furnace
33	SINTERING	Sintering	Laser Heating
34	RESIST STRIP	Dry	Asher (Micro Plasma)
35			Asher (Deep RIE)
36		Wet	Resist Remover
37			Acetone Cleaner
38	MEASUREMENT	Film Thickness	Optical Thickness Meter
39		Particle Wafer	Surface Scanner