

Blue are new market stabilizing or positive leaning information. **Orange** are new neutral to slightly negative information.

Device	Company	Production Profile	Comments	
NAND	Overall NAND	2xxL products to ramp in 2023		
	Samsung	Vol.: 176L	- 2H'21 ramp of 176L product; will use double stack process	
	Kioxia (Toshiba)	Vol.: 128L Ramp: 162L	- Fab 7, Phase 1 production 2023E. - Kitakami Fab 2 construction starting April'22.	
	SK Hynix	Vol.: 128L	- Starting 176L production; 128L+176L to be >80% of bit production exiting '21 - Dalian expansion started May'22.	
	Micron	Vol.: 176L	- FY'22 CapEx for 176L transition. Lower FY'23 CapEx, focus on 2xxL transition	
	YMTC	Ramp: 128L	- Bringing Fab2 online 2H'22. When fully ramped will have +200K capacity.	
DRAM	Overall DRAM	EUV plans firmed: Samsung & SK Hynix for 1a, Micron for 1γ		
	Samsung	1z nm	- Accelerating migration to 1z and expanding application of EUV (1a).	
	SK Hynix	1z nm	- M16 capacity to ramp aligned to demand through 2022.	
	Micron	1z nm	- \$11B FY'22 CapEx (total), lower FY'23 CapEx but will still spend for transitions - 1z + 1a to be majority of production by year end.	
	ChangXin Mem. Tech. (CXMT)	1x ramp	- Raised ~\$2.4B equity. Capacity expansion expected to continue.	
	Nanya	1x	- Delay in new fab construction, production start pushed to 2025.	
Foundry/Logic	Foundry/Logic	Running high capacity across all nodes. Leading & trailing nodes investment planned.		
	≤16nm	TSMC	5nm	- FY'22 CapEx ~\$40B (low end of guidance) on equipment shipment delays. - No update on >\$100B spending through 2023. - Construction of AZ (delayed & costlier) and Japan continue.
		Intel	10nm	- Pushing CHIPS act passage (support Ohio fab). Germany fab in planning. - Pending Tower Semiconductor acquisition, specialty foundry company
		Samsung	5nm	- Spending \$150B through 2030. 3x output (vs. '21) by '26 (Pyeongtaek & TX). - Taylor, TX (\$17B total CapEx) production H2'24. Additional TX fabs possible. - CapEx targeted at 5nm and growing capacity, with ongoing Pyeongtaek ramp
		GlobalFoundries	14nm	- Malta new fab planned, construction possibly delayed pending CHIPS act.
		SMIC	14nm	- Trade restrictions continue to impact ability to expand 14nm capacity
	≥20nm	TSMC	28nm	- Expanding 28nm capacity in China (+15K).
		UMC	28nm	- Announced Singapore fab expansion (Fab 12i P3), 30K production late 2024. - Partnering with customers for Taiwan fab 12A Phase 6 (27.5K wpm) - 28nm capacity to increase 20%; seeking 200mm→300mm migration opps.
		SMIC	28nm	- Shenzhen 40K wspm fab, production to start 2022. - Shanghai 100K wpm fab (~\$9B) producing 28nm, Beijing 100K wpm by 2024
		GlobalFoundries	28nm, FDSOI	- New Singapore Fab (\$4B), new France fab (\$5.7B) with ST
		Powerchip	45nm	- Ontrack to ramp new Tongluo site by Q3'23. Initial capacity 19K vs. prior 35K
		TI	>28nm	- New Sherman, TX fab complex announced (\$30B). Initial output 2025. - Conversion of Micron Lehi facility to analog ongoing. - Richardson, Texas Fab ramping 2H'22.
		ST	>28nm	- Partnering with Tower (foundry) for 300m Agrate fab. - Partnering with GlobalFoundries for new Crolles fab (2026 ramp)
		Renesas	>90nm	- Convert 200mm fab to 300mm (2024 ramp) for auto/renewable power chips
		Pkg	TSMC	-
	Intel		-	- Rio Rancho investment (\$3.5B) for advanced 3D packaging