



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	1z-layer products	ramping. Samsung first to announce major new capacity plan.	
	Samsung	Ramp: 128L	- Adding production line in Pyeongtaek, production to start 2H'21. - Starting production at Xi'an (Mar'20); ramp to continue to plan. - Continuing to ramp 128L.	
	Kioxia (Toshiba)	Ramp: 128L	- No update.	
	SK Hynix	Volume: 9xL Ramp: 128L	- Maintained 2020 CapEx, focused on node transition. - Starting 128L production; 96L+128L to be >70% of bit production by Q4'20	
	Micron	Volume: 9xL Ramp: 128L	- Transitioning to new gate technology, 2020 NAND bit growth to be below industry average, but returns to industry rate in 2021. - Increased discussion of X-Point product as key element of portfolio.	
	Intel	Est: 9xL	- Record revenue (\$1.7B) and return to profitability in Q2'20.	
	YMTC	Volume: 64L	- Announced 128L device. Ramp anticipated in 2021, but may be delayed as licenses will be needed for US equipment purchases.	
DRAM	Overall DRAM	Focus on node transitions; COVID increasing capacity expansion timing uncertainty		
	Samsung	1x→1y nm	- Pyeongtaek fab (Line 18) confirmed to be complete during 2020; fab sizing and ramp not decided and will depend on market conditions. - Announced first DRAM with EUV, "14nm" technology ramping early 2021.	
	SK Hynix	1x→1y→1z nm	- Voicing caution for 2021 spending, but confident in long-term demand. - Maintained 2020 CapEx; Wuxi continuing to ramp production; M16 forecast to complete cleanroom in 2020.	
	Micron	1y→1z nm	- FY'21 CapEx will increase (value not stated) but less than pre-COVID plans.	
	ChangXin Mem. Tech. (CXMT)	1x ramp	- Ramping production – approximately 2 generations behind competitors.	
	Tsinghua DRAM	TBD	- Breaking ground for first DRAM Fab. Production starting 2022.	
Foundry/Logic	Foundry/Logic	Some risk to investment timing on new US Regulations. Highest for SMIC.		
	≤16nm	TSMC	7nm → 5nm	- Increased CapEx \$1B to \$16-17B for 7nm+ and 5nm to meet demand. - Announced \$12B investment in US fab in Arizona.
		Intel	14→10nm	- Reduced 2020 CapEx \$1B; expect limited impact to equipment spending as ability to meet customer demand continues.
		Samsung	7nm	- Building new Pyeongtaek EUV foundry line. Production to start in 2H'21. - Investing in 7nm and launching 5nm in '20.
		GlobalFoundries	14nm	- Fab 8 be become compliant with US International Traffic in Arms Regulations (ITAR) standards & Export Administration Regulations (EAR).
		SMIC	14nm	- Announced a 14nm shrink process to better compete with 7nm. - Increased top end of CapEx to \$5B (+~200% YoY); delivery of US tools (& EUV) at risk with expanded US export control (announced April 27, 2020). - Raised capital on Shanghai market, majority for 14nm ramp and 7nm R&D.
		≥20nm	TSMC	28nm
	UMC		28nm	- Seeing increase in tape-outs for 28nm.
	SMIC		28nm	- No CapEx breakdown, expect <\$2B for trailing nodes of announced \$4-5B.
	GlobalFoundries		28nm, FDSOI	- Exiting Chengdu fab engagement. Construction never started but project had been in limbo for several years.
	TI			- New fab in Richardson, TX, shell to be completed by end of 2021.