

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	9x-layer products going into production at top 4; lowering total bit growth forecasts.		
	Samsung	85% 3D	<ul style="list-style-type: none"> - 2nd Xi'an fab to be completed 2019, starting operations early 2020 - Fab sizing not decided and will depend on market conditions 	
	Kioxia (Toshiba) Transition Oct'19	75% 3D	<ul style="list-style-type: none"> - New name is combo kioku (memory in Japanese) & axia (value in Greek) - June 2019 power outage resulted in est. 6 exabytes of lost capacity 	
	SK Hynix	60% 3D	<ul style="list-style-type: none"> - Ramping production at M15; slower rate than initial plan - Expect net NAND wafers to decline; not adding capacity during transition 	
	Micron	90% 3D	<ul style="list-style-type: none"> - Cut FY'2019 CapEx ~10%; indicated 2020 CapEx will be lower than 2019 - Planning larger net wafer reduction – 10% vs. prior 5% 	
	Intel	100% 3D	<ul style="list-style-type: none"> - NAND recovery slower than expected. - Starting Dalian Ph 2 production; limited 2019 NAND spending 	
	YMTC	100% 3D	<ul style="list-style-type: none"> - Ramp 32L production, transition to 64L in 2019 - Looking to jump to 128L in 2020 	
DRAM	Overall DRAM	Focus on node transitions; very limited capacity expansions.		
	Samsung	1x→1y nm	<ul style="list-style-type: none"> - Pyeongtaek fab (Line 18) confirmed to be complete during 2020 - Fab sizing not decided and will depend on market conditions - 1x will represent 70% of 2019 production. 	
	SK Hynix	1x→1y nm	<ul style="list-style-type: none"> - Forecasting bit growth mid- to high-teens - Confirmed continued plan for net wafers reduction 	
	Micron	1x ramp	<ul style="list-style-type: none"> - Investing for 1y transition in Taiwan and Japan; adding cleanroom capacity in both locations to support more process steps in 1y & 1z nodes - 5% reduction in net wafers remains announced target 	
	Tsinghua DRAM	TBD	- Announced DRAM division. Apparent replacement for JHICC	
Foundry	≤16nm	Foundry/Logic	7nm ramp with EUV & Intel transition to 10nm support continued spending.	
		TSMC	7nm	<ul style="list-style-type: none"> - 7+nm EUV expected to qualify for production by 2H'19 - Clarified 6nm half node shrink, based on 7nm+ (EUV) node
		Intel	14→10nm	<ul style="list-style-type: none"> - Meeting high-end CPU demand; shortages remain at low-end - Two fabs running 10nm ramp - Sold 5G smartphone chip IP (Apple); maintain 5G server business - Announced new fabs/expansions in Oregon & Israel (2020+)
		Samsung	7nm	<ul style="list-style-type: none"> - 7nm EUV in production; 6nm process ramp starting in 2H'19 - Implied but did not confirm adding capacity in line with EUV investment - Announced >\$100B investment through 2030; grow capability & capacity
		GlobalFoundries	16nm	<ul style="list-style-type: none"> - Initial 12nm transition to provide differentiation (vs. 14m). - Sold old IBM East Fishkill plant to ON Semi; sold 200mm US fab to Marvell
		UMC	16nm	- Continue ramp of 16nm to have viable FinFET capability
		SMIC	16nm	- Expecting to start 16nm production in Q1'19
	≥20nm	TSMC	28nm	- 10% of 2019 spending for "specialty" chips (likely 200mm in Tainan)
		UMC	28nm	- Limited activity, no announced plans for planar nodes
		SMIC	28nm	- Limited activity, no announced plans for planar node
		GlobalFoundries	28nm, FDSOI	- Focus on FDSOI & 22nm transition to provide differentiation (vs. 28nm).