

SF2 Technical Discussion

Samsung Foundry
Business Development Team

Agenda

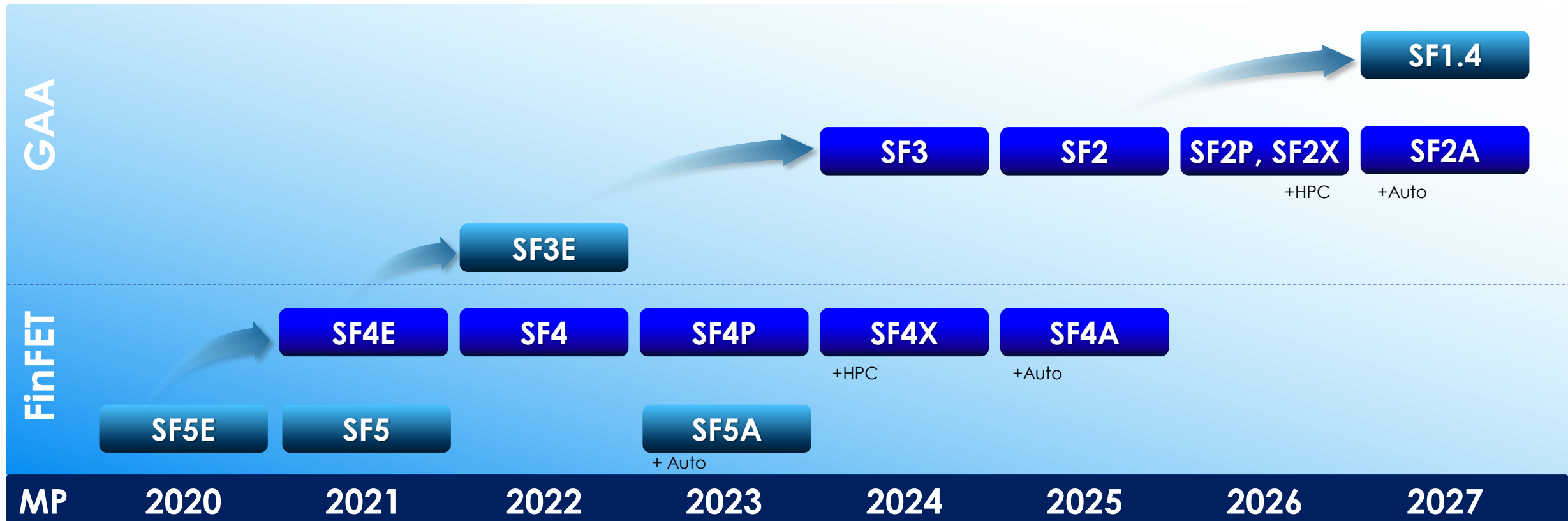
Confidential

- Advanced Technology Roadmap
- SF2 Tech. Definition and Key Infra Milestone
- Block PPA

SF Advanced Technology Roadmap

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- '24 SF3 : 3nm GAA technology for mobile
- '25 SF2 : 2nm GAA technology including xHD standard cell for PPA improvement
- '26 SF2P/SF2X : Performance 5% up and Vmax improvement for mobile and HPC



SF2 Tech. Definition and Milestone

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- Key Features: Vdd 0.70V, NS width optimization, 48CPP, 24M1
- SF3P/SF2: PDK V0.51 '23.04, and V0.9 '23.11
- SF2 PDK to be released to dedicated customers

Key Features		SF4P	SF2	
Vop		0.75V	0.70V (50mV ↓)	
Cell Height (nm)		200 / 254	138 / 148 / 168 / 200	
SRAM size (μm ²)		0.023 / 0.032	0.019 / 0.022	
FET	TR Structure	Fin	MBCFET	
	CPP (nm)	54/60	48	
	# Fin / wNS	2 Fin / 3Fin	15/25/35/40/45	
	Diffusion Break	SDB	SDB	
	IO device	EG (1.2V, 1.5V)	SG only	
BEOL	M1/M2/M3 (nm)	28/36/32	24/32/28	
	Metal Stack	14LM/16LM/18LM	14LM/16LM	

	2023					2024				
SF2 PDK					V0.9 11		V1.0 Q1			
DK/MPW			MPW4 9		MPW5 12		DK ^{Partial} Q1	MPW6 4	DK ^{Full} Q2	

- SF2 shows 29% Fmax gain and 57% Power reduction versus SF4
 - SF2P expects additional 5% Fmax gain and 10% Power reduction versus SF2

