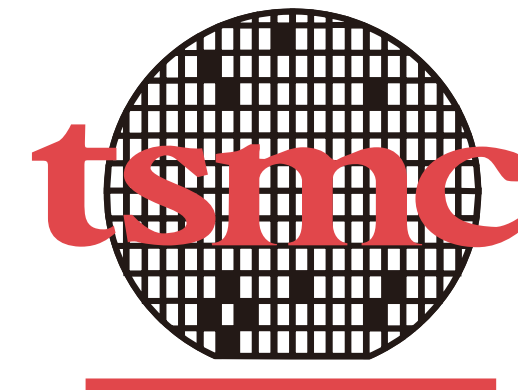
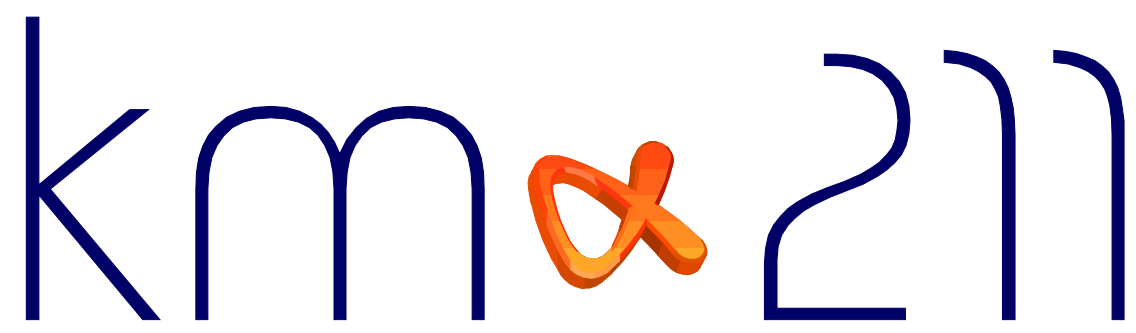


Schedule of the prototyping starts (MPW) TSMC for 2017



KM211 — Value Chain Aggregator of TSMC in Russia

TSMC — World's leading contract manufacturer of semiconductor IC's

Shuttle Type (Technology)	Duration*	Position size	Tape-In Date (TWN time)														
			I-2017			II-2017			III-2017			IV-2017					
			January	February	March	April	May	June	July	August	September	October	November	December			
<b>16 nm**</b>	<b>67-72</b>																
Logic, Fin FET Compact (0.8/1.8V)	67	4 mm <sup>2</sup>	10		7				6		8			17		5	
Logic, Fin FET Plus (0.8/1.8V)	72		10		7				6		8			17		5	
<b>28 nm**</b>	<b>66-71</b>																
Logic, HPM (0.9/1.8V, 0.9/2.5V)	70	6mm <sup>2</sup>	11	15	15	19	17	21	19	16	20	18	15	20			
Logic, HPC (0.9/1.8V, 0.9/2.5V)			11	15	15	19	17	21	19	16	20	18	15	20			
Logic, HPC Plus (0.9/1.8V, 0.9/2.5V)	68	6mm <sup>2</sup>	11	15	15	19	17	21	19	16	20	18	15	20			
Logic, HP (0.85/1.8V, 0.85/2.5V)			11	15	15	19	17	21	19	16	20	18	15	20			
Logic, LP (1.05/1.8V, 1.05/2.5V)	66	6mm <sup>2</sup>	11	15	15	19	17	21	19	16	20	18	15	20			
Logic, LP Plus (1.05/1.8V, 1.05/1.05/1.8V)			11	15	15	19	17	21	19	16	20	18	15	20			
Logic, ULP (0.7/1.8V)	71	6mm <sup>2</sup>	11		15				19		20			15			
Logic, HPL (1.0/1.8V, 1.0/2.5V)	68		11		15				19		20			15			
RF HPC Plus (0.9/1.8V, 0.9/2.5V)	70	6mm <sup>2</sup>	11	15	15	19	17	21	19	16	20	18	15	20			
RF HPC (0.9/1.8V, 0.9/2.5V)			11	15	15	19	17	21	19	16	20	18	15	20			
RF LP (1.05/1.8V)	66	6mm <sup>2</sup>	11	15	15	19	17	21	19	16	20	18	15	20			
RF HPL (1.0/1.8V, 1.0/2.5V)	68		11	15	15	19	17	21	19	16	20	18	15	20			
<b>40nm LP &amp; 45nm GS (45GS = 40G)</b>	<b>76-112</b>																
Logic, 40LP (1.1/1.8V, 1.1/2.5V)	76	9mm <sup>2</sup>	4	8	1	12	3	7	5	9	6	11	8	6			
Logic, 40LP Plus (1.1/2.5V)			4	8	1	12	3	7	5	9	6	11	8	6			
Logic, 40ULP (1.1/2.5V, 0.9/2.5V)	76	9mm <sup>2</sup>	4	8	1	12	3	7	5	9	6	11	8	6			
Mixed-Signal/RF, 40LP (1.1/1.8V, 1.1/2.5V)			4	8	1	12	3	7	5	9	6	11	8	6			
Mixed-Signal/RF, 40ULP (1.1/2.5V, 0.9/2.5V)	76	9mm <sup>2</sup>	4	8	1	12	3	7	5	9	6	11	8	6			
Logic, 45GS (45GS = 40G) (0.9/1.8V, 0.9/2.5V)			4	8	1	12	3	7	5	9	6	11	8	6			
High Voltage (1.1/5/6/25/32V)	TBD	9mm <sup>2</sup>					3			9			8				
High Voltage (1.1/8/25V)											9			8			
EmbFlash, 40LP (1.1/2.5V)	104-112	9mm <sup>2</sup>									6			6			
EmbFlash, 40ULP (0.9/2.5V)												6			6		
<b>55 nm</b>	<b>65-88</b>																
Logic, GP (1.0/1.8V, 1.0/2.5V)	65	12 mm <sup>2</sup>	17	15	8	19	10	14	19	16	13	11	8	13			
Logic, LP (1.2/1.8V, 1.2/2.5V)			17	15	8	19	10	14	19	16	13	11	8	13			
Logic, ULP (0.9V/2.5V)	88	12 mm <sup>2</sup>	17	15	8	19	10	14	19	16	13	11	8	13			
Mixed-Signal/RF, LP (1.2/1.8V, 1.2/2.5V)			17	15	8	19	10	14	19	16	13	11	8	13			
Mixed-Signal/RF, ULP (0.9V/2.5V)	88	12 mm <sup>2</sup>	17	15	8	19	10	14	19	16	13	11	8	13			
EmbFlash (1.2/2.5V)			17	15	8	19	10	14	19	16	13	11	8	13			
EmbFlash, ULP (0.9&2.5V)	77	12 mm <sup>2</sup>						14	19		13			13			
High Voltage (1.2/6/32V)									14	19		13			13		
<b>65 nm</b>	<b>63</b>																
Logic, LP/DGO (1.2/2.5V, 1.2/3.3V)	63	12 mm <sup>2</sup>	17	15	8	19	10	14	19	16	13	11	8	13			
Logic, GP/DGO (1.0/1.8V, 1.0/2.5V, 1.0/3.3V)			17	15	8	19	10	14	19	16	13	11	8	13			
Logic, LP-based TGO (1.0/1.2/2.5V)	63	12 mm <sup>2</sup>					10			16			8				
Logic, ULP (1.0/2.5V)											16			8			
Mixed-Signal/RF, GP (1.0/2.5V)	63	12 mm <sup>2</sup>	17	15	8	19	10	14	19	16	13	11	8	13			
Mixed-Signal/RF, LP (1.2/2.5V)			17	15	8	19	10	14	19	16	13	11	8	13			
<b>80 nm</b>	<b>61-73</b>																
Logic, GC (1.0/2.5V, 1.0/3.3V)	61	16 mm <sup>2</sup>				26							31				
Logic, High Performance (1.2/2.5V)							26							31			
Mixed-Signal, GC (1.0/2.5V, 1.0/3.3V)	73	16 mm <sup>2</sup>				26							31				
High Voltage (1.2/5/6/32V)							26							31			
<b>85 nm</b>	<b>59</b>																
Logic, G (1.0/1.8V, 1.0/2.5V, 1.0/3.3V)	59	16 mm <sup>2</sup>			15							20					
Logic, LP (1.2/2.5V, 1.2/3.3V)						15							20				
Logic, ULP (1.0/2.5V)	59	16 mm <sup>2</sup>			15							20					
Mixed-Signal/RF, LP (1.2/3.3V)						15							20				
<b>90 nm</b>	<b>61-81</b>																
Logic, G (1.0/1.8V, 1.0/2.5V, 1.0/3.3V, 1.0/1.8/3.3V)	61	16 mm <sup>2</sup>	11		15			10		12		20		15			
Logic, LP (1.2/2.5V, 1.2/3.3V)			11		15			10		12		20		15			
Logic, GT (High Performance) (1.2/2.5V)	61	16 mm <sup>2</sup>	11		15			10		12		20		15			
Mixed-Signal/RF, G (1.0/1.8V, 1.0/2.5V, 1.0/3.3V, 1.0/1.8/3.3V)			11		15			10		12		20		15			
Mixed-Signal/RF, LP (1.2/2.5V, 1.2/3.3V)	81	16 mm <sup>2</sup>	11		15			10		12		20		15			
EmbFlash, LP (1.2/3.3V)			11		15			10		12		20		15			
<b>0.11 um</b>	<b>55-57</b>																
Logic, G (1.2/3.3V), FSG	55-57	25 mm <sup>2</sup>				5								11			
Mixed-Signal, G (1.2/3.3V), FSG							5								11		
Mixed-Signal, G (1.2/3.3V), FSG, Hybrid	55-57	25 mm <sup>2</sup>												11			
Mixed-Signal, LP (1.2/3.3V), FSG, Hybrid															11		
<b>0.13 um</b>	<b>54-79</b>																
Logic, G (1.2/2.5V, 1.2/3.3V); FSG	54-56	25 mm <sup>2</sup>	11	21	28	26	23	28	26	9	20	11	15	6			
Logic, LP (1.5/2.5V, 1.5/3.3V); FSG			11	21	28	26	23	28	26	9	20	11	15	6			
Logic, LV (1.0/2.5V, 1.0/3.3V); FSG	65-79	25 mm <sup>2</sup>	11	21	28	26	23	28	26	9	20	11	15	6			
Mixed-Signal/RF, G (1.2/2.5V, 1.2/3.3V); FSG			11	21	28	26	23	28	26	9	20	11	15	6			
Mixed-Signal, LP (1.5/3.3V); FSG	65-79	25 mm <sup>2</sup>		21	28		23	28	26	9	20		15	6			
High Voltage, BCD (1.5/5/10/20/28/36V)			11	21	28	26	23	28	26	9	20	11	15	6			
High Voltage, BCD (1.5/3.3/5/10/20/28/36V)	11	21	28	26	23	28	26	9	20	11	15	6					
<b>0.152 um</b>	<b>38-49</b>																
Logic, G (1.8/3.3V)	38-49	25 mm <sup>2</sup>	17											22			
Mixed-Signal, G (1.8/3.3V)			17												22		
Mixed-Signal GPIIA, G (1.8/5V)	17													22			
<b>0.18 um</b>	<b>42-85</b>																
Mixed-Signal/RF, G (1.8/3.3V)	42-55	25 mm <sup>2</sup>	4/17	8/15/21	8/15/22	12/19/26	10/17/23	7/14/21	12/19/26	9/16/23	6/13/20	18/25/31	8/15/22	6/13/27			
Mixed-signal/RF, G (1.8/3.3V) embedded MTP			4	8/21	8/15	26	10/17/23	21	12/26	9/23	6/13/20	31	8/15/22	13/27			
Mixed-signal/RF, G (1.8/3.3V) embedded OTP (Kilopass/eMemory)	42-55	25 mm <sup>2</sup>	4/17	8/15	15/22	19	17	7/14	12/19	16	13/20	18/25	15	6/13			
Mixed-Signal, G, (1.8/5V)			4/17	8/15/21	8/15/22	12/19/26	10/17/23	7/14/21	12/19/26	9/16/23	6/13/20	18/25/31	8/15/22	6/13/27			
Logic, G (1.8/3.3V)	65-79	25 mm <sup>2</sup>	4	8/21	8/15	26	10/17/23	21	12/26	9/23	6/13/20	31	8/15/22	13/27			