



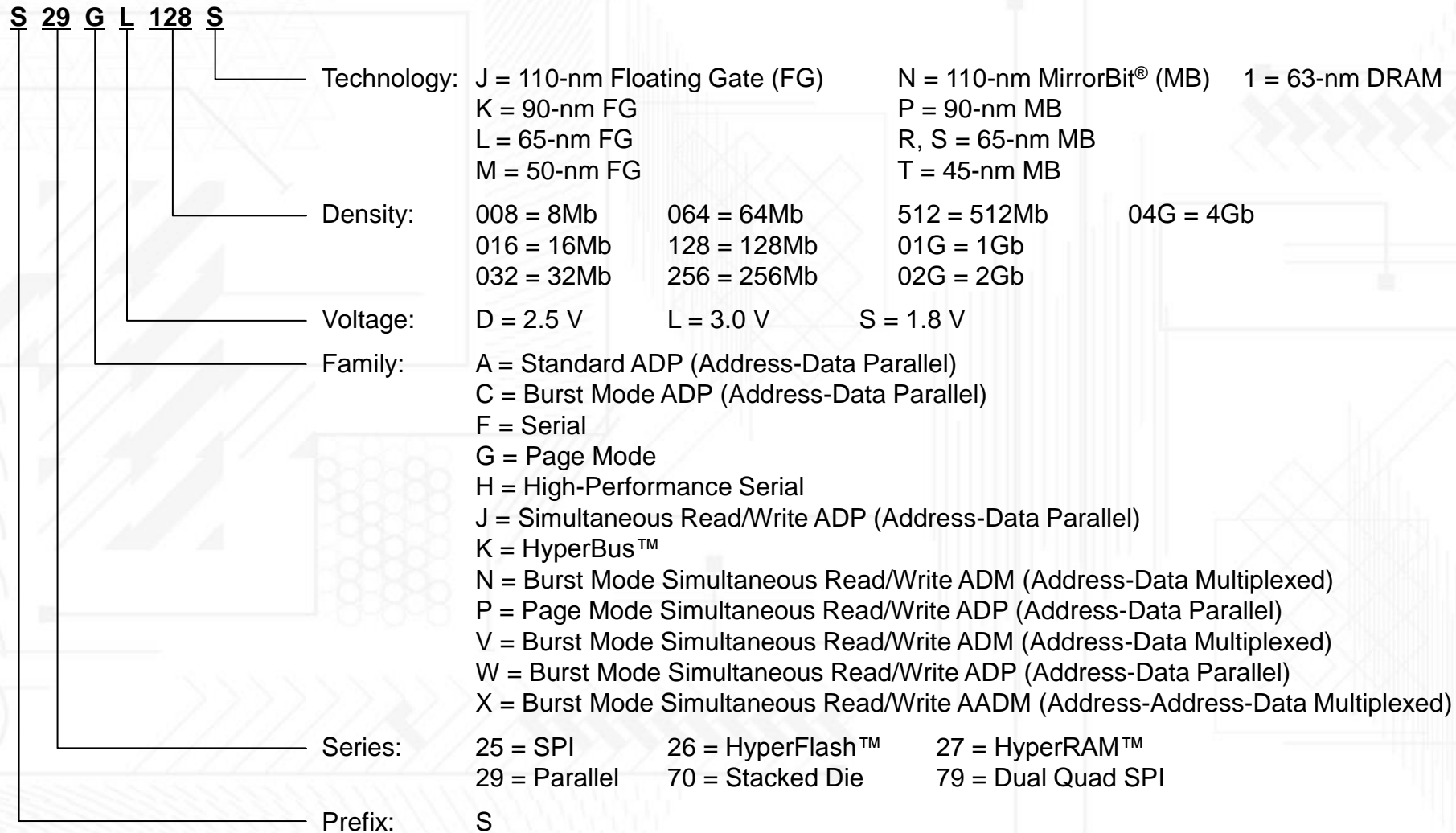
**CYPRESS**<sup>®</sup>  
EMBEDDED IN TOMORROW™

# Cypress Roadmap: Flash Memory

Q2 2017



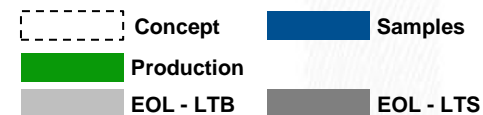
# NOR Flash Memory Family Decoder



# HyperRAM™ and HyperFlash™ NOR Flash Memory Roadmap

Product Family	Density	(Prod) [EOL]	2017				2018				2019				2020				2021			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S26KS-T 45-nm MB <sup>1</sup> 1.8 V	4Gb <sup>2</sup> 2Gb <sup>2</sup> 1Gb 512Mb	(TBD) (TBD) (Q3'18) (Q2'18)																				
S26KS-S 65-nm MB <sup>1</sup> 1.8 V	1Gb <sup>2</sup> 512Mb 256Mb 128Mb	(TBD)																				
S26KL-T 45-nm MB <sup>1</sup> 3.0 V	4Gb <sup>2</sup> 2Gb <sup>2</sup> 1Gb 512Mb	(TBD) (TBD) (Q3'18) (Q2'18)																				
S26KL-S 65-nm MB <sup>1</sup> 3.0 V	1Gb <sup>2</sup> 512Mb 256Mb 128Mb	(TBD)																				
S27KS-1 63-nm DRAM 1.8 V	256Mb <sup>2</sup> 128Mb <sup>2</sup> 64Mb	(TBD) (Q2'17)																				
S27KL-1 63-nm DRAM 3.0 V	256Mb <sup>2</sup> 128Mb <sup>2</sup> 64Mb	(TBD) (Q2'17)																				

<sup>1</sup> Hybrid Sector    <sup>2</sup> S70 Series



Products supported by Longevity Program unless noted



# HyperRAM™ and HyperFlash™ Portfolio

	HyperRAM S27KL-1 63-nm DRAM, 3.0 V	HyperRAM S27KS-1 63-nm DRAM, 1.8 V	HyperFlash S26KL-S 65-nm MB, 3.0 V	HyperFlash S26KL-T 45-nm MB, 3.0 V	HyperFlash S26KS-S 65-nm MB, 1.8 V	HyperFlash S26KS-T 45-nm MB, 1.8 V
≥256Mb	Density Initial Access/DDR Clock * Temp Range			4Gb <sup>1</sup> 80 ns / 200 MHz * I, A, V, B, M		4Gb <sup>1</sup> 80 ns / 200 MHz * I, A, V, B, M
	All parts supported by Longevity Program unless noted			2Gb <sup>1</sup> 80 ns / 200 MHz * I, A, V, B, M		2Gb <sup>1</sup> 80 ns / 200 MHz * I, A, V, B, M
64–128Mb			1Gb <sup>1,2</sup> 96 ns / 100 MHz * I, A, V, B, N, M	1Gb 80 ns / 200 MHz * I, A, V, B, M	1Gb <sup>1,2</sup> 96 ns / 166 MHz * I, A, V, B, N, M	1Gb 80 ns / 200 MHz * I, A, V, B, M
			512Mb 96 ns / 100 MHz * I, A, V, B, N <sup>2</sup> , M <sup>2</sup>	512Mb Q317 80 ns / 200 MHz * I, A, V, B, M	512Mb 96 ns / 166 MHz * I, A, V, B, N <sup>2</sup> , M <sup>2</sup>	512Mb Q317 80 ns / 200 MHz * I, A, V, B, M
	256Mb <sup>1</sup> Contact Sales	256Mb <sup>1</sup> Contact Sales	256Mb 96 ns / 100 MHz * I, A, V, B, N <sup>2</sup> , M <sup>2</sup>		256Mb 96 ns / 166 MHz * I, A, V, B, N <sup>2</sup> , M <sup>2</sup>	
	128Mb <sup>1</sup> Q217 36 ns / 100 MHz * I, A, V, B	128Mb <sup>1</sup> Q217 36 ns / 166 MHz * I, A, V, B	128Mb 96 ns / 100 MHz * I, A, V, B, N <sup>2</sup> , M <sup>2</sup>		128Mb 96 ns / 166 MHz * I, A, V, B, N <sup>2</sup> , M <sup>2</sup>	
	64Mb 36 ns / 100 MHz * I, A, V, B	64Mb 36 ns / 166 MHz * I, A, V, B				

\* I = Industrial: -40°C to +85°C  
 A = Automotive, AEC-Q100 Grade 3: -40°C to +85°C  
 V = Industrial-plus: -40°C to +105°C  
 B = Automotive, AEC-Q100 Grade 2: -40°C to +105°C  
 N = Extended: -40°C to +125°C  
 M = Automotive, AEC-Q100 Grade 1: -40°C to +125°C

<sup>1</sup> S70 series (stacked die)  
<sup>2</sup> Contact Sales

Status Availability  
 EOL (Last-Time-Ship)

Concept 
 Development 
 Sampling 
 Production



# Serial NOR Flash Memory Roadmap

Product Family	Density	(Prod) [EOL]	2017				2018				2019				2020				2021			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S25FS-T 45-nm MB <sup>1</sup> 1.8 V	4Gb <sup>3</sup> 2Gb <sup>3</sup> 1Gb 512Mb	(TBD) (TBD) (Q3'18) (Q2'18)																				
S25FS-S 65-nm MB <sup>1</sup> 1.8 V	1Gb <sup>3</sup> 512Mb 256Mb 128Mb 64Mb																					
S25FL-T 45-nm MB <sup>1</sup> 3.0 V	4Gb <sup>3</sup> 2Gb <sup>3</sup> 1Gb 512Mb	(TBD) (TBD) (Q3'18) (Q2'18)																				
S79FL-S 65-nm MB <sup>1</sup> 3.0 V	1Gb <sup>4</sup> 512Mb <sup>4</sup> 256Mb <sup>4</sup>																					
S25FL-S 65-nm MB <sup>1</sup> 3.0 V	1Gb <sup>3</sup> 512Mb 256Mb 128Mb <sup>5</sup>																					
S25FL-P 90-nm MB <sup>1</sup> 3.0 V	256Mb <sup>3</sup> 128Mb <sup>6</sup> 64Mb 32Mb	[Q4'17] [Q2'18] [Q1'18] [Q1'18]																				
S25FL-L 65-nm FG <sup>2</sup> 3.0 V	256Mb 128Mb 64Mb	(Q2'17)																				
S25FL1-K 90-nm FG <sup>2</sup> 3.0 V	64Mb 32Mb 16Mb	[Q1'18] [Q1'18] [Q1'18]																				

<sup>1</sup> Hybrid Sector      <sup>3</sup> S70 Series      <sup>5</sup> S25FL127S & S25FL128S  
<sup>2</sup> Uniform Sector      <sup>4</sup> S79 Dual Quad SPI      <sup>6</sup> S25FL128P & S25FL129P

Concept       Samples  
 Production       EOL - LTB  
 EOL - LTS

Products supported by  
Longevity Program unless noted



# SPI NOR Flash Memory Portfolio

	S25FL1-K 90-nm FG, 3.0 V Uniform Sector <sup>1</sup>	S25FL-L 65-nm FG, 3.0 V Uniform Sector <sup>1</sup>	S25FL-P 90-nm MB, 3.0 V Hybrid Sector <sup>1</sup>	S25FL-S 65-nm MB, 3.0 V Hybrid Sector <sup>1</sup>	S79FL-S <sup>2</sup> 65-nm MB, 3.0 V Hybrid Sector <sup>1</sup>	S25FL-T 45-nm MB, 3.0 V Hybrid Sector <sup>1</sup>	S25FS-S 65-nm MB, 1.8 V Hybrid Sector <sup>1</sup>	S25FS-T 45-nm MB, 1.8 V Hybrid Sector <sup>1</sup>
≥256Mb	Density SDR Clock/DDR Clock * Temp Range					4Gb <sup>4</sup> 166 MHz / 100 MHz * I, A, V, B, M		4Gb <sup>4</sup> 166 MHz / 100 MHz * I, A, V, B, M
	All parts supported by Longevity Program unless noted					2Gb <sup>4</sup> 166 MHz / 100 MHz * I, A, V, B, M		2Gb <sup>4</sup> 166 MHz / 100 MHz * I, A, V, B, M
64-128Mb		256Mb 133 MHz / 66 MHz * I, A, V, B, M	256Mb <sup>4</sup> Q417 104 MHz / -- * I, A	1Gb <sup>4</sup> 133 MHz / 80 MHz * I, A, V, B, N, M	1Gb 133 MHz / 80 MHz * I, A, V, B	1Gb 166 MHz / 100 MHz * I, A, V, B, M	1Gb <sup>4</sup> 133 MHz / 80 MHz * I, A, V, B, N, M	1Gb 166 MHz / 100 MHz * I, A, V, B, M
				512Mb 133 MHz / 80 MHz * I, A, V, B, N, M	512Mb 133 MHz / 80 MHz * I, A, V, B	512Mb Q317 166 MHz / 100 MHz * I, A, V, B, M	512Mb 133 MHz / 80 MHz * I, A, V, B, N, M	512Mb Q317 166 MHz / 100 MHz * I, A, V, B, M
				256Mb 133 MHz / 80 MHz * I, A, V, B, N, M	256Mb 133 MHz / 80 MHz * I, A, V, B		256Mb 133 MHz / 80 MHz * I, A, V, B, M	
≤32Mb		128Mb Q217 133 MHz / 66 MHz * I, A, V, B, M	128Mb <sup>5</sup> Q218 104 MHz / -- * I, A, V, B	128Mb <sup>7</sup> 133 MHz / 80 MHz * I, A, V, B, N, M			128Mb 133 MHz / 80 MHz * I, A, V, B, M	
			128Mb <sup>6</sup> Q218 104 MHz / -- * I, A, V, B	128Mb <sup>8</sup> 108 MHz / -- * I, A, V, B				
	64Mb Q118 108 MHz / -- * I, A, V, B, N <sup>3</sup> , M <sup>3</sup>	64Mb 108 MHz / 54 MHz * I, A, V, B, M	64Mb Q118 104 MHz / -- * I, A, V, B				64Mb 133 MHz / 80 MHz * I, A, V, B, N, M	
	32Mb Q118 108 MHz / -- * I, A, V, B, N <sup>3</sup> , M <sup>3</sup>		32Mb Q118 104 MHz / -- * I, A, V, B					
	16Mb Q118 108 MHz / -- * I, A, V, B, N <sup>3</sup> , M <sup>3</sup>							

<sup>1</sup> Logical sector size

<sup>2</sup> S79 series, Dual Quad SPI (stacked die)

<sup>3</sup> Contact Sales

<sup>4</sup> S70 series (stacked die)

<sup>5</sup> S25FL129P Quad SPI

<sup>6</sup> S25FL128P Dual SPI

<sup>7</sup> S25FL128S 133-MHz SDR 80-MHz DDR

<sup>8</sup> S25FL127S 108-MHz SDR

\* I = Industrial: -40°C to +85°C

A = Automotive, AEC-Q100 Grade 3: -40°C to +85°C

V = Industrial-plus: -40°C to +105°C

B = Automotive, AEC-Q100 Grade 2: -40°C to +105°C

N = Extended: -40°C to +125°C

M = Automotive, AEC-Q100 Grade 1: -40°C to +125°C

Status

Concept Development Sampling Production

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□ □ □ □

□ □ □ □

Availability

EOL (Last-Time-Ship)



# Parallel NOR Flash Memory Roadmap

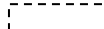




Product Family	Density	(Prod) [EOL]	2017				2018				2019				2020				2021			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S29GL-T 45-nm MB <sup>1</sup> 3.0 V	2Gb <sup>1</sup> 1Gb 512Mb		Production																			
S29GL-S 65-nm MB <sup>1</sup> 3.0 V	2Gb <sup>1</sup> 1Gb 512Mb 256Mb 128Mb 64Mb		Production																			
S29GL-P 90-nm MB <sup>1</sup> 3.0 V	2Gb <sup>1</sup> 1Gb 512Mb	[Q3'17] [Q3'17] [Q3'17]	EOL - LTB		Production																	
S29GL-P 90-nm MB <sup>1</sup> 3.0 V	256Mb 128Mb		Production																			
S29GL-N 110-nm MB <sup>1</sup> 3.0 V	64Mb 32Mb		Production																			
S29PL-J 110-nm FG <sup>1,2</sup> 3.0 V	128Mb 64Mb 32Mb		Production																			
S29JL-J 110-nm FG <sup>2</sup> 3.0 V	64Mb 32Mb		Production																			
S29AL-J 110-nm FG 3.0 V	16Mb 8Mb		Production																			
S29AS-J 110-nm FG 1.8 V	16Mb 8Mb		Production																			

<sup>1</sup> Supports simultaneous read/write operation

<sup>2</sup> Supports Page Mode

<sup>3</sup> S70 series (stacked die)

Products supported by  
Longevity Program unless noted

	Concept		Samples
	Production		EOL - LTB
	EOL - LTS		EOL - LTS



# Parallel NOR Flash Memory Portfolio

	S29AS-J 110-nm FG, 1.8 V	S29AL-J 110-nm FG, 3.0 V	S29JL-J <sup>1</sup> 110-nm FG, 3.0 V	S29PL-J <sup>1, 2</sup> 110-nm FG, 3.0 V	S29GL-N <sup>2</sup> 110-nm MB, 3.0 V	S29GL-P <sup>2</sup> 90-nm MB, 3.0 V	S29GL-S <sup>2</sup> 65-nm MB, 3.0 V	S29GL-T <sup>2</sup> 45-nm MB, 3.0 V
≥256Mb	<b>Density</b> Initial/Page Access * Temp Range  All parts supported by Longevity Program unless noted					<b>2Gb<sup>3</sup></b> Q317 110 ns / 25 ns * I	<b>2Gb<sup>3</sup></b> 110 ns / 20 ns * I, A, V, B	<b>2Gb<sup>3</sup></b> 110 ns / 20 ns * I, A, V, B, N
						<b>1Gb</b> Q317 110 ns / 25 ns * I	<b>1Gb</b> 100 ns / 15 ns * I, A, V, B	<b>1Gb</b> 100 ns / 15 ns * I, A, V, B, N
						<b>512Mb</b> Q317 100 ns / 25 ns * I	<b>512Mb</b> 100 ns / 15 ns * I, A, V, B	<b>512Mb</b> 100 ns / 15 ns * I, A, V, B, N
						<b>256Mb</b> 90 ns / 25 ns * I	<b>256Mb</b> 90 ns / 15 ns * I, A, V, B	
64–128Mb				<b>128Mb</b> 60 ns / 20 ns * I, A		<b>128Mb</b> 90 ns / 25 ns * I	<b>128Mb</b> 90 ns / 15 ns * I, A, V, B	
			<b>64Mb</b> 55 ns / -- * I, A	<b>64Mb</b> 55 ns / 20 ns * I, A	<b>64Mb</b> 90 ns / 25 ns * I, A		<b>64Mb</b> 70 ns / 15 ns * I, A, B	
			<b>32Mb</b> 60 ns / -- * I, A	<b>32Mb</b> 55 ns / 20 ns * I, A	<b>32Mb</b> 90 ns / 25 ns * I, A			
≤32Mb	<b>16Mb</b> 70 ns / -- * I, A	<b>16Mb</b> 55 ns / -- * I, A, N, M						
	<b>8Mb</b> 70 ns / -- * I, A	<b>8Mb</b> 55 ns / -- * I, A, N, M						

\* I = Industrial: -40°C to +85°C  
 A = Automotive, AEC-Q100 Grade 3: -40°C to +85°C  
 V = Industrial-plus: -40°C to +105°C  
 B = Automotive, AEC-Q100 Grade 2: -40°C to +105°C  
 N = Extended: -40°C to +125°C  
 M = Automotive, AEC-Q100 Grade 1: -40°C to +125°C

<sup>1</sup> Supports simultaneous read/write operation  
<sup>2</sup> Supports Page Mode  
<sup>3</sup> S70 series (stacked die)

Status Availability EOL (Last-Time-Ship)

Concept
  Development
  Sampling
  Production





QQYY
QQYY
QQYY





# Burst NOR Flash Memory Roadmap

Product Family	Density	(Prod) [EOL]	2017				2018				2019				2020				2021			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S29WS-P 90-nm MB 1.8 V	512Mb 256Mb 128Mb		Production																			
S29NS-P 90-nm MB 1.8 V	512Mb		Production																			
S29VS-R 65-nm MB 1.8 V	256Mb 128Mb 64Mb		Production																			
S29XS-R 65-nm MB 1.8 V	256Mb 128Mb 64Mb		Production																			
S29CD-J 110-nm MB 2.5 V	32Mb 16Mb		Production																			
S29CL-J 110-nm MB 3.0 V	32Mb 16Mb		Production																			

	Concept		Samples
	Production		EOL - LTS
	EOL - LTB		EOL - LTS



# Burst NOR Flash Memory Portfolio

	S29CL-J <sup>1</sup> 110-nm FG, 3.0 V	S29CD-J <sup>1</sup> 110-nm FG, 2.5 V	S29XS-R <sup>2</sup> 65-nm MB, 1.8 V	S29VS-R <sup>3</sup> 65-nm MB, 1.8 V	S29NS-P <sup>2</sup> 90-nm MB, 1.8 V	S29WS-P <sup>1</sup> 90-nm MB, 1.8 V
≥256Mb	Density Initial Access/SDR Clock * Temp Range	All parts supported by Longevity Program unless noted			512Mb 80 ns / 83 MHz * W	512Mb 80 ns / 104 MHz * W  256Mb 80 ns / 104 MHz * W
64-128Mb			256Mb 80 ns / 108 MHz * W, I  128Mb 80 ns / 108 MHz * W, I  64Mb 80 ns / 108 MHz * W, I	256Mb 80 ns / 108 MHz * W, I  128Mb 80 ns / 108 MHz * W, I  64Mb 80 ns / 108 MHz * W, I		128Mb 80 ns / 104 MHz * W
≤32Mb	32Mb 54 ns / 75 MHz * I, A, N, M, H, T  16Mb 54 ns / 66 MHz * I, A, N, M, H, T	32Mb 54 ns / 75 MHz * I, A, N, M, H, T  16Mb 54 ns / 66 MHz * I, A, N, M, H, T				

\* W = Wireless: -25°C to +85°C

I = Industrial: -40°C to +85°C

A = Automotive, AEC-Q100 Grade 3: -40°C to +85°C

N = Extended: -40°C to +125°C

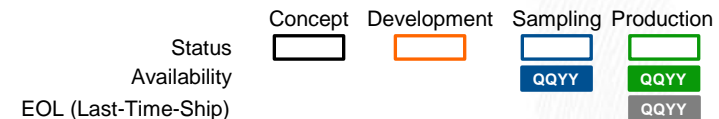
M = Automotive, AEC-Q100 Grade 1: -40°C to +125°C

T = Automotive, AEC-Q100 Grade 0: -40°C to +150°C

<sup>1</sup> ADP (Address Data Parallel) Burst

<sup>2</sup> AADM (Address high, Address low, Data Multiplex) Burst

<sup>3</sup> ADM (Address Data Multiplex) Burst



# KGD NOR Flash Memory Portfolio

	HyperFlash 3.0 V	HyperFlash 1.8 V	Quad SPI 3.0 V	Quad SPI 1.8 V	Parallel 3.0 V
	<b>Density</b> Initial Access/DDR Clock * Temp Range		<b>Density</b> SDR Clock/DDR Clock * Temp Range		<b>Density</b> Initial/Page Access * Temp Range
≥256Mb	<b>KL-S 512Mb</b> 96 ns / 100 MHz * I, V, N  <b>KL-S 256Mb</b> 96 ns / 100 MHz * I, V, N	<b>KS-S 512Mb</b> 96 ns / 166 MHz * I, V, N  <b>KS-S 256Mb</b> 96 ns / 166 MHz * I, V, N	<b>FL-S 512Mb</b> 133 MHz / 80 MHz * I, V  <b>FL-L 256Mb</b> 133 MHz / 66 MHz * I, V, N	<b>FS-S 256Mb</b> 133 MHz / 80 MHz * I, V	<b>GL-S 1Gb</b> 100 ns / 15 ns * I, V  <b>GL-S 512Mb</b> 100 ns / 15 ns * I, V  <b>GL-S 256Mb</b> 90 ns / 15 ns * I, V
64–128Mb	<b>KL-S 128Mb</b> 96 ns / 100 MHz * I, V, N	<b>KS-S 128Mb</b> <span style="background-color: #0056b3; color: white; padding: 2px;">Q317</span> 96 ns / 166 MHz * I, V, N	<b>FL-L 128Mb</b> 133 MHz / 66 MHz * I, V, N  <b>FL-L 64Mb</b> 108 MHz / 54 MHz * I, V, N	<b>FS-S 128Mb</b> 133 MHz / 80 MHz * I, V  <b>FS-S 64Mb</b> 133 MHz / 80 MHz * I, V, N	<b>GL-S 128Mb</b> 90 ns / 15 ns * I, V
<64Mb	All parts supported by Longevity Program unless noted				<b>AL-J 16Mb</b> 55 ns / -- * I, V, N  <b>AL-J 8Mb</b> 55 ns / -- * I, V, N

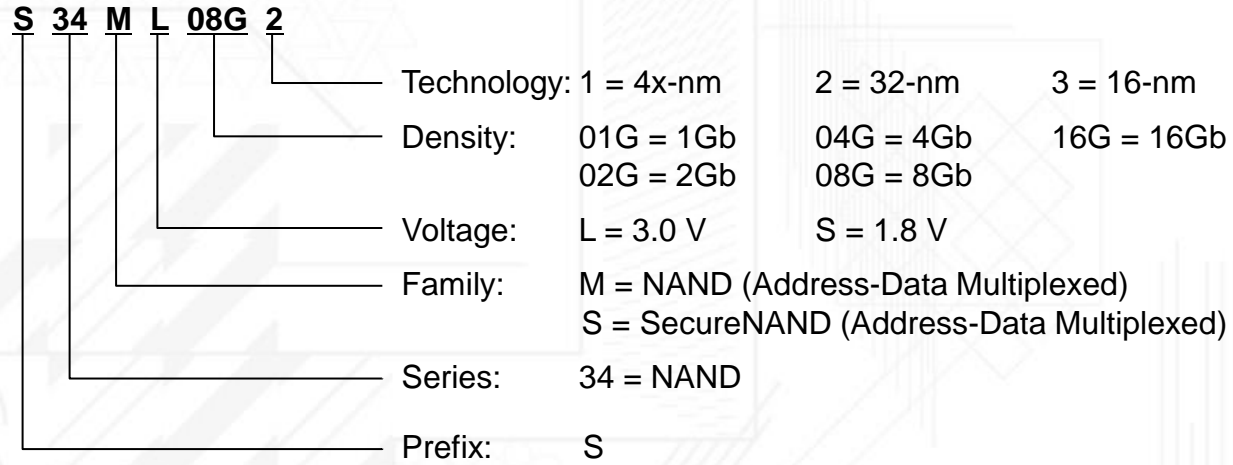
\* I = Industrial: -40°C to +85°C  
 V = Industrial-plus: -40°C to +105°C  
 N = Extended: -40°C to +125°C

Contact Sales for KGD datasheets

Status Availability EOL (Last-Time-Ship)

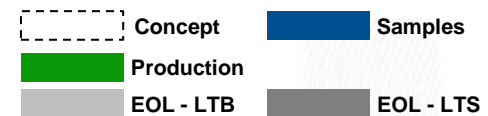
Concept	Development	Sampling	Production
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		QQYY	QQYY
			QQYY

# NAND Family Decoder



# NAND Flash Memory Roadmap

Product Family	Density	(Prod) [EOL]	2017				2018				2019				2020				2021			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S34MS-3 16-nm SLC, ONFI 1.0 1.8 V	16Gb 8Gb 4Gb 2Gb 1Gb	(TBD) (TBD) (Q4'18) (TBD) (TBD)																				
S34MS-2 32-nm SLC, ONFI 1.0 1.8 V	16Gb 8Gb 4Gb 2Gb 1Gb																					
S34MS-1 4x-nm SLC, ONFI 1.0 1.8 V	4Gb 2Gb 1Gb	[Q2'19] [Q2'19] [Q2'19]																				
S34SL-2 32-nm SLC, ONFI 1.0 3.0 V	4Gb 2Gb 1Gb																					
S34ML-3 16-nm SLC, ONFI 1.0 3.0 V	16Gb 8Gb 4Gb 2Gb 1Gb	(TBD) (TBD) (Q2'18) (TBD) (TBD)																				
S34ML-2 32-nm SLC, ONFI 1.0 13.0 V	16Gb 8Gb 4Gb 2Gb 1Gb																					
S34ML-1 4x-nm SLC, ONFI 1.0 3.0 V	8Gb 4Gb 2Gb 1Gb	[Q2'19] [Q2'19] [Q2'19] [Q2'19]																				



Products supported by Longevity Program unless noted



# SLC NAND Portfolio

	S34ML-1 <sup>1</sup> 4x-nm, 3.0 V SLC, ONFI 1.0 <sup>2</sup>	S34ML-2 <sup>3</sup> 32-nm, 3.0 V SLC, ONFI 1.0 <sup>2</sup>	S34ML-3 <sup>1</sup> 16-nm, 3.0 V SLC, ONFI 1.0 <sup>2</sup>	S34SL-2 <sup>3, 4</sup> 32-nm, 3.0 V SLC, ONFI 1.0 <sup>2</sup>	S34MS-1 <sup>1</sup> 4x-nm, 1.8 V SLC, ONFI 1.0 <sup>2</sup>	S34MS-2 <sup>3</sup> 32-nm, 1.8 V SLC, ONFI 1.0 <sup>2</sup>	S34MS-3 <sup>1</sup> 16-nm, 1.8 V SLC, ONFI 1.0 <sup>2</sup>
8-16Gb	Density; Bus Width Interface Bandwidth * Temp Range						
	All parts supported by Longevity Program unless noted						
		16Gb; x8 40 MBps * I, A <sup>5</sup> , V <sup>5</sup> , B <sup>5</sup>	16Gb; x8 40 MBps * I, A, V, B			16Gb; x8 40 MBps * I, A <sup>5</sup> , V <sup>5</sup> , B <sup>5</sup>	16Gb; x8 40 MBps * I, A, V, B
	8Gb; x8 Q219 40 MBps * I, A, V <sup>5</sup> , B	8Gb; x8 40 MBps * I, A, V, B	8Gb; x8 40 MBps * I, A, V, B		8Gb; x8 40 MBps * I, A, V, B	8Gb; x8 40 MBps * I, A, V, B	
1-4Gb	4Gb; x8/16 Q219 40 MBps * I, A, V, B	4Gb; x8/16 40 MBps * I, A, V, B	4Gb; x8 Q118 40 MBps * I, A, V, B	4Gb; x8 40 MBps * I, V	4Gb; x8 Q219 40 MBps * I, A <sup>5</sup> , V, B	4Gb; x8/16 40 MBps * I, A, V, B	4Gb; x8 Q318 40 MBps * I, A, V, B
	2Gb; x8/16 Q219 40 MBps * I, A, V, B	2Gb; x8/16 40 MBps * I, A <sup>5</sup> , V <sup>5</sup> , B <sup>5</sup>	2Gb; x8 40 MBps * I, A, V, B	2Gb; x8 40 MBps * I, V <sup>5</sup>	2Gb; x8/16 Q219 40 MBps * I, A <sup>5</sup> , V, B	2Gb; x8/16 40 MBps * I, A <sup>5</sup> , V <sup>5</sup> , B <sup>5</sup>	2Gb; x8 40 MBps * I, A, V, B
	1Gb; x8 Q219 40 MBps * I, A, V, B	1Gb; x8/16 40 MBps * I, A, V, B	1Gb; x8 40 MBps * I, A, V, B	1Gb; x8 40 MBps * I, V	1Gb; x8/16 Q219 40 MBps * I, A <sup>5</sup> , V, B	1Gb; x8/16 40 MBps * I, A, V, B	1Gb; x8 40 MBps * I, A, V, B

\* I = Industrial: -40°C to +85°C  
 A = Automotive, AEC-Q100 Grade 3: -40°C to +85°C  
 V = Industrial-plus: -40°C to +105°C  
 B = Automotive, AEC-Q100 Grade 2: -40°C to +105°C

<sup>1</sup> 1-bit error-correcting code (ECC)  
<sup>2</sup> Open NAND Flash Interface  
<sup>3</sup> 4-bit error-correcting code (ECC)  
<sup>4</sup> SecureNAND™: Cypress' SLC NAND Flash Memory with full-capacity volatile and nonvolatile block protection  
<sup>5</sup> Contact Sales

Status Availability EOL (Last-Time-Ship)

Concept 
 Development 
 Sampling 
 Production

Concept 
 Development 
 Sampling 
 Production

Concept 
 Development 
 Sampling 
 Production



# Flash and RAM MCP Decoder

**S 71 N S 512 R D**

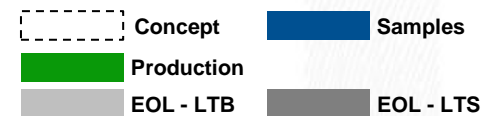
RAM Density:	A = 16Mb	B = 32Mb	C = 64Mb	D = 128Mb	E = 256Mb
Flash Technology:	N = 110-nm MirrorBit (MB)	P = 90-nm MB	R, S = 65-nm MB		
Flash Density:	032 = 32Mb	128 = 128Mb	512 = 512Mb		
	064 = 64Mb	256 = 256Mb	01G = 1Gb		
Voltage:	L = 3.0 V	S = 1.8 V			
Family:	G = Page Mode K = HyperFlash N = Burst Mode Simultaneous Read/Write ADM (Address-Data Multiplexed) V = Burst Mode Simultaneous Read/Write ADM (Address-Data Multiplexed) W = Burst Mode Simultaneous Read/Write ADP (Address-Data Parallel) X = Burst Mode Simultaneous Read/Write AADM (Address-Address-Data Multiplexed)				
Series:	71, 98 = NOR Flash + pSRAM    72 = NOR Flash + DRAM				
Prefix:	S				

**S 76 M S A 9 2**

Memory Type:	2 = NAND SLC, x16 NAND, x16 LPDDR1, 200 MHz DDR, 1.8 V				
RAM Density:	9 = 512Mb				
Flash Density:	A = 1Gb				
Voltage:	L = 3.0 V	S = 1.8 V			
Family:	M = NAND				
Series:	76 = NAND Flash + DRAM				
Prefix:	S				

# Flash and RAM MCP Flash Memory Roadmap

Product Family Flash / RAM	Flash / RAM Density	(Prod) [EOL]	2017				2018				2019				2020				2021			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S71KS-S HyperFlash / HyperRAM 1.8 V	512Mb / 64Mb 256Mb / 64Mb 128Mb / 64Mb	(Q3'17) (TBD) (TBD)																				
S71KL-S HyperFlash / HyperRAM 3.0 V	512Mb / 64Mb 256Mb / 64Mb 128Mb / 64Mb	(Q2'17) (TBD)																				
S76MS NAND / DRAM 1.8 V	1Gb / 512Mb																					
S98GL-N 110-nm MB / pSRAM 3.0 V	64Mb / 32Mb																					
S72XS-P 65-nm MB / DRAM 1.8 V	256Mb / 256Mb																					
S72VS-R 65-nm MB / DRAM 1.8 V	256Mb / 256Mb																					
S71VS-R 65-nm MB / pSRAM 1.8 V	256Mb / 128Mb 256Mb / 64Mb 128Mb / 64Mb 128Mb / 32Mb 64Mb / 32Mb																					
S71NS-P 90-nm MB / pSRAM 1.8 V	512Mb / 128Mb																					
S71WS-P 90-nm MB / pSRAM 1.8 V	256Mb / 64Mb																					



Products supported by Longevity Program unless noted





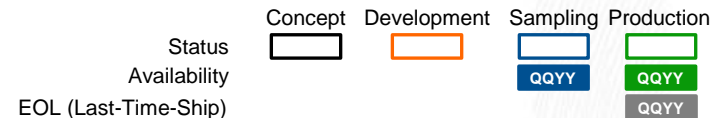
# Flash and RAM MCP Memory Portfolio

	S71WS-P <sup>1</sup> 90-nm MB, 1.8 V	S71NS-P <sup>2</sup> 90-nm MB, 1.8 V	S71VS-R <sup>2</sup> 65-nm MB, 1.8 V	S72VS-R <sup>3</sup> 65-nm MB, 1.8 V	S72XS-R <sup>3</sup> 65-nm MB, 1.8 V	S98GL-N <sup>4</sup> 110-nm MB, 3.0 V	S76MS <sup>5</sup> 32-nm MB, 1.8 V	S71KL-S <sup>6</sup> 65-nm MB, 3.0 V	S71KS-S <sup>6</sup> 65-nm MB, 1.8 V
	Flash Density RAM Density * Temp Range	All parts supported by Longevity Program unless noted							
≥256Mb		512Mb 128Mb * W	256Mb 128Mb * W	256Mb 256Mb * W	256Mb 256Mb <sup>7</sup> * I		1Gb 512Mb * I	512Mb 64Mb <sup>9</sup> * I, A, V, B	512Mb 64Mb <sup>9</sup> * I, A, V, B <span style="color: green;">Q317</span>
	256Mb 64Mb * W		256Mb 64Mb * W		256Mb 256Mb <sup>8</sup> * W, I			256Mb <span style="color: green;">Q217</span> 64Mb <sup>9</sup> * I, A, V, B	256Mb 64Mb <sup>9</sup> * I, A, V, B
64-128Mb			128Mb 64Mb * W					128Mb 64Mb <sup>9</sup> * I, A, V, B	128Mb 64Mb <sup>9</sup> * I, A, V, B
			128Mb 32Mb * W						
			64Mb 32Mb * W			64Mb 32Mb * I			

\* W = Wireless: -25°C to +85°C  
 I = Industrial: -40°C to +85°C  
 A = Automotive, AEC-Q100 Grade 3: -40°C to +85°C  
 V = Industrial-plus: -40°C to +105°C  
 B = Automotive, AEC-Q100 Grade 2: -40°C to +105°C

<sup>1</sup> ADP (Address Data Parallel) Burst  
<sup>2</sup> ADM (Address Data Multiplex) Burst  
<sup>3</sup> AADM (Address High, Address Low, Data Multiplex) Burst  
<sup>4</sup> Parallel, Page Mode

<sup>5</sup> NAND  
<sup>6</sup> HyperFlash  
<sup>7</sup> DRAM Version 2  
<sup>8</sup> DRAM Version 1  
<sup>9</sup> HyperRAM



# HyperRAM™ and HyperFlash™ Packages

Family	Density	Device	BGA24 8 x 8 mm 5 x 5 Ball	BGA24 8 x 6 mm 5 x 5 Ball	KGD
KS-T	512Mb	S26KS512S	CF	CF	CF
	1Gb	S26KS01GS	CF		CF
	2Gb	S70KS02GS	CF		
	4Gb	S70KS04GS	CF		
KS-S	128Mb	S26KS128S		✓	CF
	256Mb	S26KS256S		✓	CF
	512Mb	S26KS512S		✓	CF
	1Gb	S70KS01GS		✓	
KL-T	512Mb	S26KL512S	CF	CF	CF
	1Gb	S26KL01GS	CF		CF
	2Gb	S70KL02GS	CF		
	4Gb	S70KL04GS	CF		
KL-S	128Mb	S26KL128S		✓	CF
	256Mb	S26KL256S		✓	CF
	512Mb	S26KL512S		✓	CF
	1Gb	S70KL01GS		✓	
KS-1	64Mb	S26KS0641		✓	CF
	128Mb	S70KS1281		✓	
	256Mb	S70KS2561		✓	
KL-1	64Mb	S26KL0641		✓	CF
	128Mb	S70KL1281		✓	
	256Mb	S70KL2561		✓	

CF = Contact Factory

# SPI NOR Flash Memory Packages

Family	Density	Device	SOIC-8 150 mil	SOIC-8 208 mil	SOIC-16 300 mil	WSON 4 x 4 mm	WSON 6 x 5 mm	WSON 8 x 6 mm	BGA24 8 x 8 mm 5 x 5 Ball	BGA24 8 x 6 mm 5 x 5 Ball	BGA24 8 x 6 mm 4 x 6 Ball	KGD
FS-T	512Mb	S25FS512S			CF				CF	CF		CF
	1Gb	S25FS01GS			CF				CF			CF
	2Gb	S70FS02GS							CF			
	4Gb	S70FS04GS							CF			
FS-S	64Mb	S25FS064S		✓			✓			✓		✓
	128Mb	S25FS128S		✓	CF		✓	✓		✓	✓	CF
	256Mb	S25FS256S			✓			✓		✓	✓	✓
	512Mb	S25FS512S			✓			✓		✓	✓	CF
	1Gb	S70FS01GS			✓					✓		
FL-T	512Mb	S25FL512S			CF				CF	CF		CF
	1Gb	S25FL01GS			CF				CF			CF
	2Gb	S70FL02GS							CF			
	4Gb	S70FL04GS							CF			
FL-S Dual Quad	256Mb	S79FL256S			✓							
	512Mb	S79FL512S			✓							
	1Gb	S79FL01GS								✓		
FL-S	128Mb	S25FL127S		✓	✓		✓			✓	✓	
	128Mb	S25FL128S			✓			✓		✓	✓	
	256Mb	S25FL256S			✓			✓		✓	✓	
	512Mb	S25FL512S			✓					✓	✓	✓
	1Gb	S70FL01GS			✓					✓		
FL-P	32Mb	S25FL032P		✓	✓		✓	✓		✓	✓	✓
	64Mb	S25FL064P			✓			✓		✓	✓	✓
	128Mb	S25FL128P			✓			✓				
	128Mb	S25FL129P			✓			✓		✓	✓	
	256Mb	S70FL256P			✓			✓		✓		
FL-L	64Mb	S25FL064L		✓		✓				✓	✓	CF
	128Mb	S25FL128L		✓			✓			✓	✓	CF
	256Mb	S25FL256L			✓			✓		✓	✓	CF
FL1-K	16Mb	S25FL116K	✓	✓			✓			✓	✓	✓
	32Mb	S25FL132K	✓	✓		✓	✓			✓	✓	✓
	64Mb	S25FL164K		✓	✓		✓			✓	✓	✓

CF = Contact Factory  
UD = Under Development



# Parallel NOR Flash Memory Packages

Family	Density	Device	48-Ball FBGA (0.8-mm pitch)	48-Ball FBGA (0.5-mm pitch)	56-Ball BGA (0.8-mm pitch)	64-Ball BGA (0.8-mm pitch)	64-Ball Fortified BGA (1.0-mm pitch)	48-Pin TSOP	56-Pin TSOP	KGD
GL-T	512Mb	S29GL512T			✓		✓		✓	
	1Gb	S29GL01GT			✓		✓		✓	
	2Gb	S70GL02GT					✓			
GL-S	64Mb	S29GL064S	✓				✓	✓	✓	
	128Mb	S29GL128S			✓		✓		✓	✓
	256Mb	S29GL256S			✓		✓		✓	✓
	512Mb	S29GL512S			✓		✓		✓	✓
	1Gb	S29GL01GS					✓		✓	✓
	2Gb	S70GL02GS					✓			
GL-P	128Mb	S29GL128P					✓		✓	✓
	256Mb	S29GL256P					✓		✓	✓
	512Mb	S29GL512P					✓		✓	
	1Gb	S29GL01GP					✓		✓	
	2Gb	S70GL02GP					✓			
GL-N	32Mb	S29GL032N	✓				✓	✓	✓	✓
	64Mb	S29GL064N	✓				✓	✓	✓	✓
PL-J	32Mb	S29PL032J	✓		✓					
	64Mb	S29PL064J	✓		✓					
	128Mb	S29PL127J				✓			✓	✓
JL-J	32Mb	S29JL032J	✓					✓		✓
	64Mb	S29JL064J	✓					✓		✓
AL-J	8Mb	S29AL008J	✓					✓		✓
	16Mb	S29AL016J	✓				✓	✓		✓
AS-J	8Mb	S29AS008J	✓					✓		✓
	16Mb	S29AS016J	✓	✓				✓		✓

# Burst NOR Flash Memory Packages

Family	Density	Device	44-Ball FBGA (0.5-mm pitch)	64-Ball BGA (0.5-mm pitch)	84-Ball Fortified BGA (0.8-mm pitch)	80-Ball FBGA (1.0-mm pitch)	80-Pin PQFP	KGD
WS-P	128Mb	S29WS128P			✓			
	256Mb	S29WS256P			✓			
	512Mb	S29WS512P			✓			
NS-P	512Mb	S29NS512P		✓				
VS-R	64Mb	S29VS064R	✓					
	128Mb	S29VS128R	✓					
	256Mb	S29VS256R	✓					
XS-R	64Mb	S29XS064R	✓					
	128Mb	S29XS128R	✓					
	256Mb	S29XS256R	✓					
CD-J	16Mb	S29CD016J				✓	✓	✓
	32Mb	S29CD032J				✓	✓	
CL-J	16Mb	S29CL016J				✓	✓	
	32Mb	S29CL032J				✓	✓	

# SLC NAND Packages

Family	Density	Device	63-Ball BGA (0.8-mm pitch)	67-Ball BGA (0.8-mm pitch)	48-Pin TSOP
MS-3	1Gb	S34MS01G3	✓		
	2Gb	S34MS02G3	✓		
	4Gb	S34MS04G3	✓		
	8Gb	S34MS08G3	✓		
	16Gb	S34MS16G3	✓		
MS-2	1Gb	S34MS01G2	✓	✓	✓
	2Gb	S34MS02G2	✓	✓	✓
	4Gb	S34MS04G2	✓		✓
	8Gb	S34MS08G2	✓		
	16Gb	S34MS16G2	✓		
MS-1	1Gb	S34MS01G1	✓		
	2Gb	S34MS02G1	✓		✓
	4Gb	S34MS04G1	✓		✓
ML-3	1Gb	S34ML01G3	✓		✓
	2Gb	S34ML02G3	✓		✓
	4Gb	S34ML04G3	✓		✓
	8Gb	S34ML08G3	✓		✓
	16Gb	S34ML16G3	✓		✓
ML-2	1Gb	S34ML01G2	✓	✓	✓
	2Gb	S34ML02G2	✓	✓	✓
	4Gb	S34ML04G2	✓		✓
	8Gb	S34ML08G2	✓		✓
	16Gb	S34ML16G2	✓		✓
ML-1	1Gb	S34ML01G1	✓		✓
	2Gb	S34ML02G1	✓		✓
	4Gb	S34ML04G1	✓		✓
	8Gb	S34ML08G1	✓		✓

# SecureNAND Packages

Family	Density	Device	63-Ball BGA (0.8-mm pitch)
SL-2	1Gb	S34SL01G2	✓
	2Gb	S34SL02G2	✓
	4Gb	S34SL04G2	✓

# Flash and RAM MCP Memory Packages

Family	Flash Density	RAM Density	BGA24 8 x 6 mm 5 x 5 Ball	56-Ball Very Thin FBGA (0.5-mm pitch)	56-Ball FBGA (0.8-mm pitch)	84-Ball FBGA (0.8-mm pitch)	130-Ball BGA (0.65-mm pitch)	133-Ball FBGA (0.5-mm pitch)
S71KS-S	128Mb	64Mb	✓					
	256Mb	64Mb	✓					
	512Mb	64Mb	✓					
S71KL-S	128Mb	64Mb	✓					
	256Mb	64Mb	✓					
	512Mb	64Mb	✓					
S76MS	1Gb	512Mb				✓		
S98GL-N	64Mb	32Mb			✓			
S72XS-R	256Mb	256Mb						
S72VS-R	256Mb	256Mb						
S71VS-R	256Mb	128Mb		✓				
	256Mb	64Mb		✓				
	128Mb	64Mb		✓				
	128Mb	32Mb		✓				
	64Mb	32Mb		✓				
S71NS-P	512Mb	128Mb		✓				
S71WS-P	256Mb	64Mb				✓		





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