



CYPRESS[®]
EMBEDDED IN TOMORROW™

Cypress Roadmap: Flash Memory

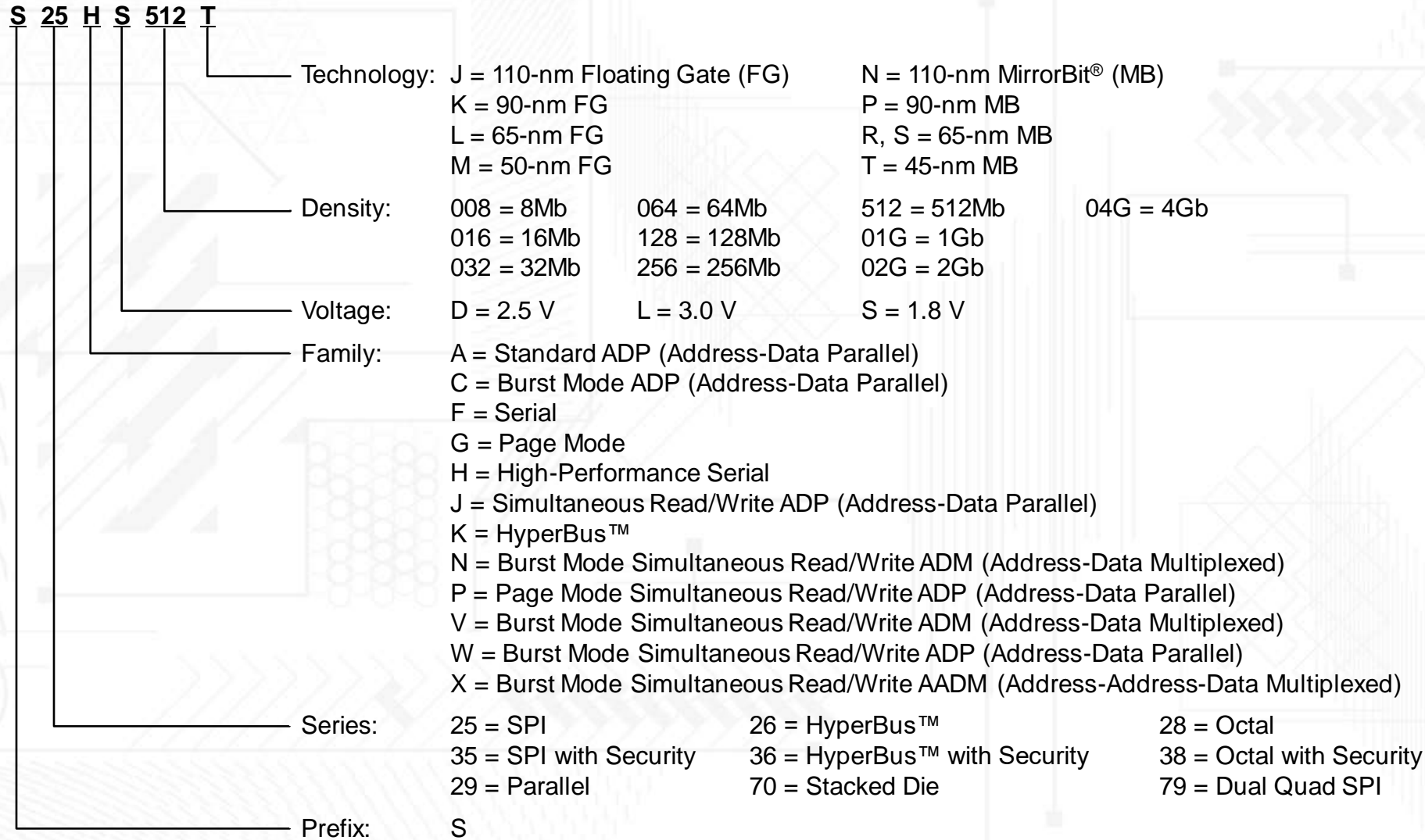
Q1 2020



NOR Flash Memory Family



NOR Flash Memory Family Decoder



NOR Flash Memory Product Portfolio: New Products

Family	Interface	Sector Size	Series	Voltage	Densities	Lead	Tech	2020	2021	2022	2023	2024
Semper™ Flash	QSPI	Hybrid	S25HS-T S25HL-T	1.8 V 3.0 V	128Mb–4Gb	512Mb	45-nm MB					
	HyperBus		S26HS-T S26HL-T	1.8 V 3.0 V	128Mb–4Gb	512Mb	45-nm MB					
	Octal		S28HS-T S28HL-T	1.8 V 3.0 V	128Mb–4Gb	512Mb	45-nm MB					
QSPI	QSPI	Hybrid	S25FS-S	1.8 V	64Mb–1Gb	-	65-nm MB					
			S25FL-S	3.0 V	128Mb–1Gb	-	65-nm MB					
		Uniform 4KB	S25FL-L	3.0 V	64–256Mb	-	65-nm FG					
Dual Quad SPI	QSPI	Hybrid	S79FS-S S79FL-S	1.8 V 3.0 V	256Mb–1Gb	-	65-nm MB					
HyperFlash	HyperBus™	Hybrid	S26KS-S S26KL-S	3.0 V	128–512Mb	-	65-nm MB					
Parallel	Parallel	Hybrid	S29GL-T	3.0 V	512Mb–2Gb	-	45-nm MB					

 Concept
 Samples
 Production
 EOL

x8 Serial NOR Flash Memory Roadmap

Product Family	Density	(Prod) [EOL]	2020				2021				2022				2023				2024			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S28HS-T ¹ (1.8 V) S28HL-T ¹ (3.0 V) Semper™ Flash with Octal Interface 45-nm MB ²	4Gb ³	(TBD)																				
	2Gb ³	(Q2'20) ⁴																				
	1Gb	(Q1'20)																				
	512Mb																					
	256Mb	(Q2'21)																				
128Mb	(TBD)																					
S26HS-T ¹ (1.8 V) S26HL-T ¹ (3.0 V) Semper Flash with HyperBus™ Interface 45-nm MB ²	4Gb ³	(TBD)																				
	2Gb ³	(TBD)																				
	1Gb	(Q1'20)																				
	512Mb																					
	256Mb	(Q2'21)																				
128Mb	(TBD)																					
S26KS-S (1.8 V) S26KL-S (3.0 V) HyperFlash 65-nm MB ²	512Mb																					
	256Mb																					
	128Mb																					
S79FS-S (1.8 V) Dual Quad SPI 65-nm MB ²	1Gb ⁵																					
	512Mb ⁵	(TBD)																				
	256Mb ⁵	(TBD)																				
S79FL-S (3.0 V) Dual Quad SPI 65-nm MB ²	1Gb ⁵																					
	512Mb ⁵																					
	256Mb ⁵																					

¹ JEDEC xSPI Compliant

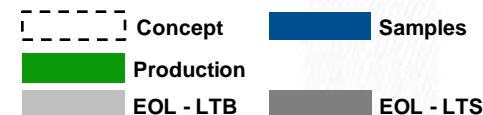
⁴ 1.8V Only

² Hybrid Sector

⁵ S79 Series (stacked die)

³ Stacked Die

Products supported by
Longevity Program unless noted



x8 Serial NOR Flash Memory Portfolio

	Dual Quad SPI S79FL-S ^{1, 2} 65-nm MB, 3.0 V	HyperFlash S26KL-S ¹ 65-nm MB, 3.0 V	Semper™ Flash ³ S26HL-T ¹ 45-nm MB, 3.0 V	Semper Flash ⁵ S28HL-T ¹ 45-nm MB, 3.0 V	Dual Quad SPI S79FS-S ^{1, 2} 65-nm MB, 1.8 V	HyperFlash S26KS-S ¹ 65-nm MB, 1.8 V	Semper Flash ³ S26HS-T ¹ 45-nm MB, 1.8 V	Semper Flash ⁵ S28HS-T ¹ 45-nm MB, 1.8 V
≥256Mb	Product Family Number SDR Clock / DDR Clock * Temperature Range							
	All parts supported by Longevity Program unless noted							
			S26HL04GT^{5,6} -/133 MHz * I, A, V, B, M	S28HL04GT^{5,6} 133 MHz/133 MHz * I, A, V, B, M			S26HS04GT^{5,6} -/166 MHz * I, A, V, B, M	S28HS04GT^{5,6} 166 MHz/166 MHz * I, A, V, B, M
			S26HL02GT^{5,6} -/133 MHz * I, A, V, B, M	S28HL02GT^{5,6} 133 MHz/133 MHz * I, A, V, B, M			S26HS02GT^{5,6} -/166 MHz * I, A, V, B, M	S28HS02GT^{5,6} Q220 166 MHz/166 MHz * I, A, V, B, M
			S26HL01GT Q120 -/166 MHz * I, A, V, B, M	S28HL01GT Q120 166 MHz/166 MHz * I, A, V, B, M	S79FS01GS 133 MHz/102 MHz * I, A, V, B		S26HS01GT Q120 -/200 MHz * I, A, V, B, M	S28HS01GT Q120 200 MHz/200 MHz * I, A, V, B, M
		S79FL512S 133 MHz/80 MHz * I, A, V, B	S26KL512S -/100 MHz * I, A, V, B, M	S26HL512T -/166 MHz * I, A, V, B, M	S28HL512T 166 MHz/166 MHz * I, A, V, B, M	S79FS512S 133 MHz/80 MHz * I, A, V, B	S26KS512S -/166 MHz * I, A, V, B, M	S26HS512T -/200 MHz * I, A, V, B, M
64-128Mb	S79FL256S 133 MHz/80 MHz * I, A, V, B	S26KL256S -/100 MHz * I, A, V, B, M	Q120 S26HL256T Q221 -/166 MHz * I, A, V, B, M	Q120 S28HL256T Q221 166 MHz/166 MHz * I, A, V, B, M	S79FS256S 133 MHz/80 MHz * I, A, V, B	S26KS256S -/166 MHz * I, A, V, B, M	Q120 S26HS256T Q221 -/200 MHz * I, A, V, B, M	Q120 S28HS256T Q221 200 MHz/200 MHz * I, A, V, B, M
		S26KL128S -/100 MHz * I, A, V, B, M	S26HL128T -/166 MHz * I, A, V, B, M	S28HL128T 166 MHz/166 MHz * I, A, V, B, M		S26KS128S -/166 MHz * I, A, V, B, M	S26HS128T -/200 MHz * I, A, V, B, M	S28HS128T 200 MHz/200 MHz * I, A, V, B, M

¹ Hybrid Sector

² S79 series (stacked die)

³ HyperBus Interface (xSPI Profile 2.0)

⁴ Octal Interface (xSPI Profile 1.0)

⁵ Stacked die

⁶ Contact Sales

* 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

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

Status

Concept	Development	Sampling	Production
		QYY	QYY
			QYY

Availability

EOL (Last-Time-Ship)

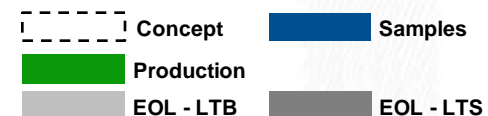


x4 Serial NOR Flash Memory Roadmap

Product Family	Density	(Prod) [EOL]	2020				2021				2022				2023				2024			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S25HS-T (1.8 V) S25HL-T (3.0 V) Semper™ Flash with QSPI Interface 45-nm MB ¹	4Gb ⁴	(TBD)																				
	2Gb ⁴	(Q1'20) ⁵																				
	1Gb	(Q1'20)																				
	512Mb																					
	256Mb	(Q2'21)																				
	128Mb	(TBD)																				
S25FS-S (1.8 V) S25FL-S ² (3.0 V) QSPI 65-nm MB ¹	1Gb ⁶																					
	512Mb																					
	256Mb																					
	128Mb ⁷ 64Mb ⁸																					
S25FL-L (3.0 V) QSPI 65-nm FG ³	256Mb																					
	128Mb																					
	64Mb																					

¹ Hybrid Sector
² VIO 1.8 V to 3.0 V
³ Uniform Sector
⁴ Stacked die
⁵ QSPI 3.0V only in production
⁶ S70 Series (stacked die)
⁷ S25FL127S & S25FL128S
⁸ FS-S only

Products supported by Longevity Program unless noted



x4 Serial NOR Flash Memory Portfolio

	QSPI S25FL-L ¹ 65-nm FG, 3.0 V	QSPI S25FL-S ² 65-nm MB, 3.0 V	Semper™ Flash ³ S25HL-T ² 45-nm MB, 3.0 V	QSPI S25FS-S ² 65-nm MB, 1.8 V	Semper Flash ³ S25HS-T ² 45-nm MB, 1.8 V
≥256Mb	<p>Product Family Number SDR Clock/DDR Clock * Temperature Range</p> <p>All parts supported by Longevity Program unless noted</p>		<p>S25HL04GT⁴ 133 MHz/66 MHz * I, A, V, B, M</p> <p>S25HL02GT^{4,6} Q120 133 MHz/66 MHz * I, A, V, B, M</p> <p>S25HL01GT Q120 166 MHz/102 MHz * I, A, V, B, M</p> <p>S25HL512T 166 MHz/102 MHz * I, A, V, B, M</p> <p>Q120 S25HL256T Q221 166 MHz/102 MHz * I, A, V, B, M</p>		<p>S25HS04GT⁴ 133 MHz/66 MHz * I, A, V, B, M</p> <p>S25HS02GT⁴ Q220 133 MHz/66 MHz * I, A, V, B, M</p> <p>S25HS01GT Q120 166 MHz/102 MHz * I, A, V, B, M</p> <p>S25HS512T 166 MHz/102 MHz * I, A, V, B, M</p> <p>Q120 S25HS256T Q221 166 MHz/102 MHz * I, A, V, B, M</p>
	<p>S25FL256L 133 MHz/66 MHz * I, A, V, B, M</p>	<p>S70FL01GS⁵ 133 MHz/80 MHz * I, A, V, B, M</p> <p>S25FL512S 133 MHz/80 MHz * I, A, V, B, M</p> <p>S25FL256S 133 MHz/80 MHz * I, A, V, B, M</p>		<p>S70FS01GS⁵ 133 MHz/80 MHz * I, A, V, B, N, M</p> <p>S25FS512S 133 MHz/80 MHz * I, A, V, B, N, M</p> <p>S25FS256S 133 MHz/80 MHz * I, A, V, B, M</p>	
	<p>S25FL128L 133 MHz/66 MHz * I, A, V, B, M</p> <p>S25FL064L 108 MHz/54 MHz * I, A, V, B, M</p>	<p>S25FL128S 133 MHz/80 MHz * I, A, V, B, M</p> <p>S25FL127S 108 MHz/-- * I, A, V, B</p>	<p>S25HL128T 166 MHz/102 MHz * I, A, V, B, M</p>	<p>S25FS128S 133 MHz/80 MHz * I, A, V, B, M</p> <p>S25FS064S 133 MHz/80 MHz * I, A, V, B, N, M</p>	<p>S25HS128T 166 MHz/102 MHz * I, A, V, B, M</p>
64–128Mb					

¹ Uniform Sector
² Hybrid Sector
³ With QSPI

⁴ Stacked die
⁵ S70 series (stacked die)
⁶ Contact Sales

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

Status Availability EOL (Last-Time-Ship)

Concept
 Development
 Sampling
 Production

QQYY
QQYY
QQYY



Parallel NOR Flash Memory Roadmap

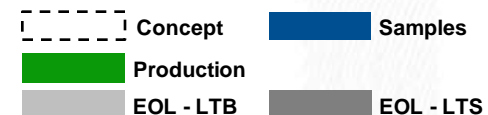
Product Family	Density	(Prod) [EOL]	2020				2021				2022				2023				2024			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S29GL-T ¹ (3.0 V) 45-nm MB	2Gb ³ 1Gb 512Mb		[Green bar]																			
S29GL-S ¹ (3.0 V) 65-nm MB	2Gb ³ 1Gb 512Mb 256Mb 128Mb 64Mb		[Green bar]																			
S29GL-P ¹ (3.0 V) 90-nm MB	256Mb 128Mb		[Green bar]																			
S29GL-N ¹ (3.0 V) 110-nm MB	64Mb 32Mb		[Green bar]																			
S29PL-J ^{1,2} (3.0 V) 110-nm FG	128Mb 64Mb 32Mb		[Green bar]																			
S29JL-J ² (3.0 V) 110-nm FG	64Mb 32Mb		[Green bar]																			
S29AL-J (3.0 V) 110-nm FG	16Mb 8Mb		[Green bar]																			
S29AS-J (1.8 V) 110-nm FG	16Mb		[Green bar]																			

¹ Supports Page Mode

² Supports simultaneous read/write operation

³ S70 series (stacked die)

Products supported by
Longevity Program unless noted



Parallel NOR Flash Memory Portfolio

	S29AS-J 110-nm FG, 1.8 V	S29AL-J 110-nm FG, 3.0 V	S29JL-J ¹ 110-nm FG, 3.0 V	S29PL-J ^{1, 2} 110-nm FG, 3.0 V	S29GL-N ² 110-nm MB, 3.0 V	S29GL-P ² 90-nm MB, 3.0 V	S29GL-S ² 65-nm MB, 3.0 V	S29GL-T ² 45-nm MB, 3.0 V
≥256Mb	Product Family Number Initial/Page Access * Temperature Range						S70GL02GS ³ 110 ns/20 ns * I, A, V, B	S70GL02GT ³ 110 ns/20 ns * I, A, V, B, N
	All parts supported by Longevity Program unless noted						S29GL01GS 100 ns/15 ns * I, A, V, B	S29GL01GT 100 ns/15 ns * I, A, V, B, N
							S29GL512S 100 ns/15 ns * I, A, V, B	S29GL512T 100 ns/15 ns * I, A, V, B, N
64–128Mb				S29PL128J 60 ns/20 ns * I, A		S29GL256P 90 ns/25 ns * I	S29GL256S 90 ns/15 ns * I, A, V, B	
			S29JL064J 55 ns/-- * I, A	S29PL064J 55 ns/20 ns * I, A	S29GL064N 90 ns/25 ns * I, A		S29GL128S 90 ns/15 ns * I, A, V, B	
≤32Mb	S29AS016J 70 ns/-- * I, A	S29AL016J 55 ns/-- * I, A, N, M	S29JL032J 60 ns/-- * I, A	S29PL032J 55 ns/20 ns * I, A	S29GL032N 90 ns/25 ns * I, A		S29GL064S 70 ns/15 ns * I, A, B	
		S29AL008J 55 ns/-- * I, A, N, M						

¹ Supports simultaneous read/write operation

² Supports Page Mode

³ S70 series (stacked die)

* 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

Availability

EOL (Last-Time-Ship)

Concept



Development



Sampling



Production



Burst NOR Flash Memory Roadmap

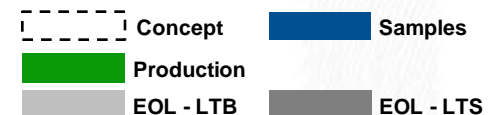
Product Family	Density	(Prod) [EOL]	2020				2021				2022				2023				2024			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S29WS-P ¹ (1.8 V) 90-nm MB	512Mb 256Mb 128Mb		[Green bar]																			
S29NS-P ² (1.8 V) 90-nm MB	512Mb		[Green bar]																			
S29VS-R ³ (1.8 V) 65-nm MB	256Mb 128Mb 64Mb		[Green bar]																			
S29XS-R ² (1.8 V) 65-nm MB	256Mb 128Mb 64Mb		[Green bar]																			
S29CD-J ¹ (1.8 V) 110-nm MB	32Mb 16Mb		[Green bar]																			
S29CL-J ¹ (3.0 V) 110-nm MB	32Mb 16Mb		[Green bar]																			

¹ Address Data Parallel (ADP) Burst

² Address high, Address low, Data Multiplex (AADM) Burst

³ Address Data Multiplex (ADM) Burst

Products supported by
Longevity Program unless noted



Burst NOR Flash Memory Portfolio

	S29CL-J ¹ 110-nm FG, 3.0 V	S29CD-J ¹ 110-nm FG, 2.5 V	S29XS-R ² 65-nm MB, 1.8 V	S29VS-R ³ 65-nm MB, 1.8 V	S29NS-P ² 90-nm MB, 1.8 V	S29WS-P ¹ 90-nm MB, 1.8 V
≥256Mb	Product Family Number Initial Access/SDR Clock * Temp Range	All parts supported by Longevity Program unless noted			S29NS512P 80 ns/83 MHz * W	S29WS512P 80 ns/104 MHz * W
64–128Mb			S29XS256R 80 ns/108 MHz * W, I	S29VS256R 80 ns/108 MHz * W, I		S29WS256P 80 ns/104 MHz * W
			S29XS128R 80 ns/108 MHz * W, I	S29VS128R 80 ns/108 MHz * W, I		S29WS128P 80 ns/104 MHz * W
≤32Mb	S29CL032J 54 ns/75 MHz * I, A, N, M, H, T	S29CD032J 54 ns/75 MHz * I, A, N, M, H, T				
	S29CL016J 54 ns/66 MHz * I, A, N, M, H, T	S29CD016J 54 ns/66 MHz * I, A, N, M, H, T				

¹ Address Data Parallel (ADP) Burst

² Address high, Address low, Data Multiplex (AADM) Burst

³ Address Data Multiplex (ADM) Burst

* 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

Status	Concept	Development	Sampling	Production
Availability				
EOL (Last-Time-Ship)				



KGD/ KGW NOR Flash Memory Portfolio¹

	HyperFlash 3.0 V	HyperFlash 1.8 V	Quad SPI 3.0 V	Quad SPI 1.8 V	Parallel 3.0 V
	Product Family Number Initial Access/DDR Clock * Temperature Range		Product Family Number SDR Clock/DDR Clock * Temperature Range		Product Family Number Initial/Page Access * Temperature Range
≥256Mb	All parts supported by Longevity Program unless noted S26KL512S 96 ns/100 MHz * I, V, N S26KL256S 96 ns/100 MHz * I, V, N	S26KS512S 96 ns/166 MHz * I, V, N S26KS256S 96 ns /166 MHz * I, V, N, M	S25FL512S 133 MHz/80 MHz * I, V S25FS256L 133 MHz/66 MHz * I, V, N	S25FS256S 133 MHz/80 MHz * I, V S25FS256T 133 MHz/80 MHz * I, V	S29GL01GS 100 ns/15 ns * I, V S29GL512S 100 ns/15 ns * I, V S29GL256S 90 ns/15 ns * I, V
64–128Mb	S26KL128S 96 ns/100 MHz * I, V, N	S26KS128S 96 ns/166 MHz * I, V, N, M	S25FL128L 133 MHz/66 MHz * I, V, N S25FL064L 108 MHz/54 MHz * I, V, N	S25FS128S 133 MHz/80 MHz * I, V S25FS064S 133 MHz/80 MHz * I, V, N	S29GL128S 90 ns / 15 ns * I, V
<64Mb					S29AL016J 55 ns/-- * I, V, N S29AL008J 55 ns/-- * I, V, N

¹ Contact Sales for KGD datasheets

* I = Industrial: -40°C to +85°C
 V = Industrial-plus: -40°C to +105°C
 N = Extended: -40°C to +125°C
 M = Automotive, AEC-Q100 Grade 1: -40°C to +125°C
 All temperature grades are T_j

Status Availability

Concept
 Development
 Sampling
 Production

EOL (Last-Time-Ship)

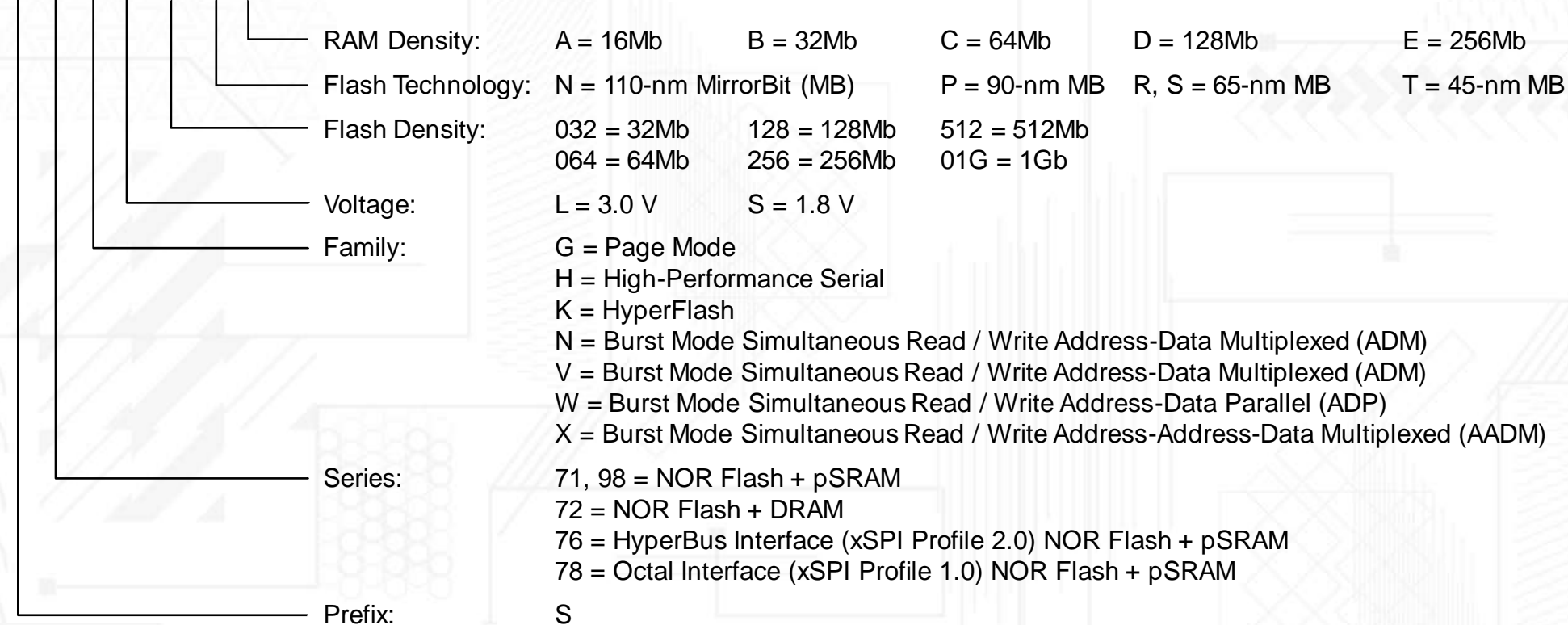


Flash and RAM Memory MCP



Flash and RAM Memory MCP Decoder

S 71 N S 512 S D

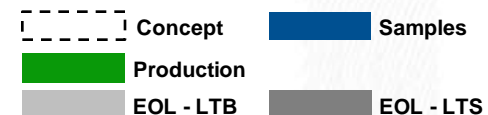


Serial Flash and RAM Memory MCP Roadmap

Product Family Flash / RAM	Flash / RAM Density	(Prod) [EOL]	2020				2021				2022				2023				2024			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S78HS-T (1.8 V) ¹ 45-nm Semper™ Flash / HyperRAM™	1Gb/64Mb 512Mb/64Mb	(TBD) (TBD)																				
S76HS-T (1.8 V) ² 45-nm Semper™ Flash / HyperRAM™	1Gb/64Mb 512Mb/64Mb	(TBD) (TBD)																				
S71KS-S (1.8 V) ³ 65-nm HyperFlash/ HyperRAM	512Mb/64Mb 256Mb/64Mb 128Mb/64Mb	(TBD) (TBD) (TBD)																				
S78HL-T (1.8 V) ¹ 45-nm Semper™ Flash / HyperRAM™	1Gb/64Mb 512Mb/64Mb	(TBD) (TBD)																				
S76HL-T (1.8 V) ² 45-nm Semper™ Flash / HyperRAM™	1Gb/64Mb 512Mb/64Mb	(TBD) (TBD)																				
S71KL-S (3.0 V) ³ 65-nm HyperFlash/ HyperRAM	512Mb/64Mb 256Mb/64Mb 128Mb/64Mb	(TBD) (TBD) (TBD)																				

¹ Octal Interface (xSPI Profile 1.0)
² HyperBus Interface (xSPI Profile 2.0)
³ HyperBus Interface

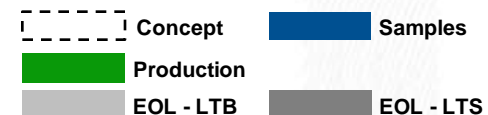
Products supported by
Longevity Program unless noted



Parallel Flash and RAM Memory MCP Roadmap

Product Family Flash / RAM	Flash / RAM Density	(Prod) [EOL]	2020				2021				2022				2023				2024			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S98GL-N (3.0 V) 110-nm MB/pSRAM	64Mb/32Mb		Production																			
S72XS-R (1.8 V) 65-nm MB/DRAM	256Mb/256Mb		Production																			
S72VS-R (1.8 V) 65-nm MB/DRAM	256Mb/256Mb		Production																			
S71VS-R (1.8 V) 65-nm MB/pSRAM	256Mb/128Mb		Production																			
	256Mb/64Mb		Production																			
	128Mb/64Mb		Production																			
	128Mb/32Mb 64Mb/32Mb		Production																			
S71NS-P (1.8 V) 90-nm MB/pSRAM	512Mb/128Mb		Production																			
S71WS-P (1.8 V) 90-nm MB/pSRAM	256Mb/64Mb		Production																			

Products supported by
Longevity Program unless noted



Serial Flash and RAM Memory MCP Portfolio

	S71KL-S 65-nm MB, 3.0 V	S76HL-T 45-nm MB, 3.0 V	S78HL-T 45-nm MB, 3.0 V	S71KS-S 65-nm MB, 1.8 V	S76HS-T 45-nm MB, 1.8 V	S78HS-T 45-nm MB, 1.8 V
	Product Family Number RAM Density * Temperature Range	All parts supported by Longevity Program unless noted				
≥256Mb		S76HL01GTC ² 64Mb ⁴ * I, A, V, B	S78HL01GTC ³ 64Mb ⁴ * I, A, V, B		S76HS1GTC ² 64Mb ⁴ * I, A, V, B	S78HS1GTC ³ 64Mb ⁴ * I, A, V, B
	S71KL512SC ¹ 64Mb ⁴ * I, A, V, B	S76HL512TC ² 64Mb ⁴ * I, A, V, B	S78HL512TC ³ 64Mb ⁴ * I, A, V, B	S71KS512SC ¹ 64Mb ⁴ * I, A, V, B	S76HS512TC ² 64Mb ⁴ * I, A, V, B	S78HS512TC ³ 64Mb ⁴ * I, A, V, B
64–128Mb	S71KL256SC ¹ 64Mb ⁴ * I, A, V, B			S71KS256SC ¹ 64Mb ⁴ * I, A, V, B		
	S71KL128SC ¹ 64Mb ⁴ * I, A, V, B			S71KS128SC ¹ 64Mb ⁴ * I, A, V, B		

¹ HyperFlash

² HyperBus Interface (xSPI Profile 2.0)

³ Octal Interface (xSPI Profile 1.0)

⁴ HyperRAM™

* 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

Status

Concept	Development	Sampling	Production
		QQYY	QQYY
			QQYY

Availability

EOL (Last-Time-Ship)



Parallel Flash and RAM Memory MCP Portfolio

	S71WS-P ¹ 90-nm MB, 1.8 V	S71NS-P ² 90-nm MB, 1.8 V	S71VS-R ² 65-nm MB, 1.8 V	S72VS-R ³ 65-nm MB, 1.8 V	S72XS-R ³ 65-nm MB, 1.8 V	S98GL-N ⁴ 110-nm MB, 3.0 V
≥256Mb	Product Family Number RAM Density * Temperature Range	All parts supported by Longevity Program unless noted				
	S71WS256PC 64Mb * W	S71NS512PD 128Mb * W	S71VS256RD 128Mb * W S71VS256RC 64Mb * W	S72VS256RE 256Mb * W	S72XS256RE 256Mb ⁵ * S72XS256RE 256Mb ⁶ * W,	
64–128Mb			S71VS128RC 64Mb * W S71VS128RB 32Mb * W S71VS064RB 32Mb * W			S98GL064NB 32Mb *

¹ Address Data Parallel (ADP) Burst

² Address Data Multiplex (ADM) Burst

³ Address High, Address Low, Data Multiplex (AADM) Burst

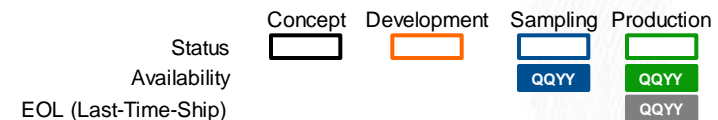
⁴ Parallel, Page Mode

⁵ DRAM Version 2

⁶ DRAM Version 1

* W = Wireless: -25°C to +85°C

| = Industrial: -40°C to +85°C

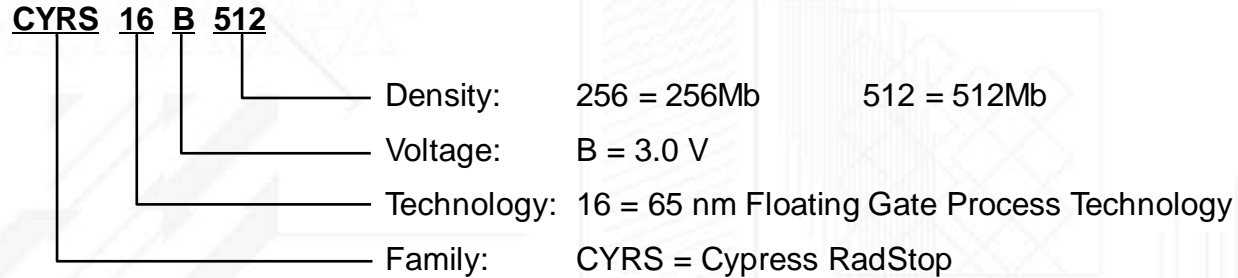


Aerospace and Military Family

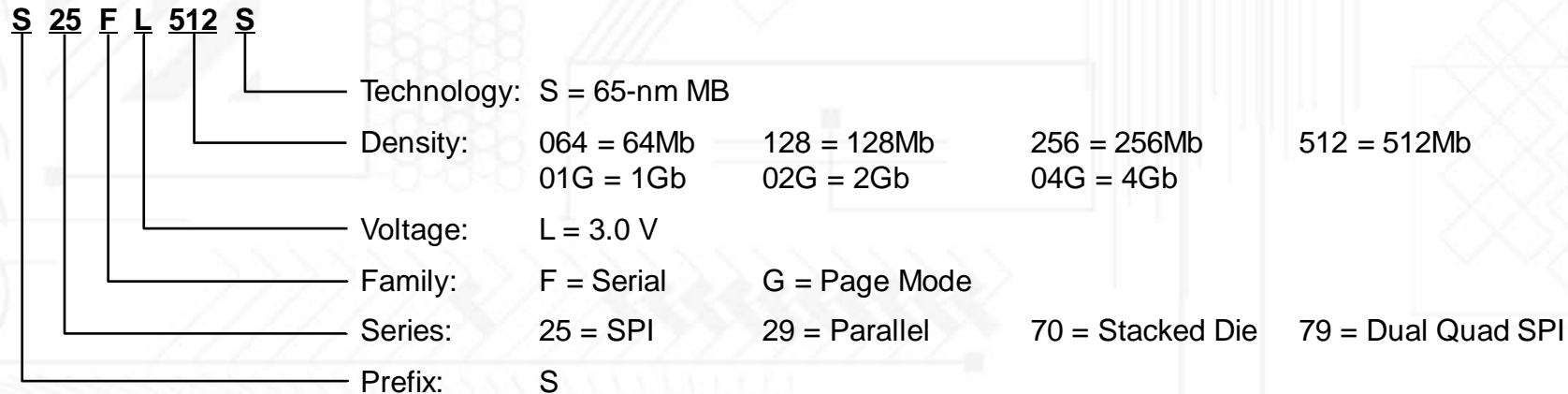


NOR Flash Memory Family Decoder

Aerospace



Military



Aerospace^{1, 2, 3} and Military⁴ Memory Portfolio

	Aerospace Serial I/O 3.0 V	Military Serial I/O, ECC 3.0 V	Military Parallel I/O, ECC 3.0 V
≥256Mb	<div data-bbox="338 525 723 619"> <p>CYRS16B512 512Mb DDR DQSPI; 133MHz</p> <p>Q220</p> </div> <div data-bbox="338 639 723 733"> <p>CYRS16B256 256Mb DDR QSPI; 133MHz</p> <p>Q220</p> </div>	<div data-bbox="1123 411 1508 505"> <p>S70/79FL01GS 1Gb 133-MHz QSPI, E, Auto M⁵</p> <p>Q120</p> </div> <div data-bbox="1123 525 1508 619"> <p>S25FL512S 512Mb 133-MHz QSPI, E, Auto M⁵</p> </div> <div data-bbox="1123 639 1508 733"> <p>S25FL256S 256Mb 133-MHz QSPI, E, Auto M⁵</p> </div>	<div data-bbox="1867 301 2252 395"> <p>S29GL02GS 2Gb 130ns, x16, E, Auto M⁵</p> </div> <div data-bbox="1867 415 2252 509"> <p>S29GL01GS 1Gb 130ns, x16, E, Auto M⁵</p> </div> <div data-bbox="1867 529 2252 624"> <p>S29GL512S 512Mb 130ns, x16, E, Auto M⁵</p> </div> <div data-bbox="1867 644 2252 738"> <p>S29GL256S 256Mb 130ns, x16, E, Auto M⁵</p> </div>
64-128Mb		<div data-bbox="1123 776 1508 871"> <p>S25FL128S 128Mb 133-MHz QSPI, E, Auto M⁵</p> </div>	<div data-bbox="1867 776 2252 871"> <p>S29GL128S 128Mb 130ns, x16, E, Auto M⁵</p> </div> <div data-bbox="1867 891 2252 985"> <p>S29GL064S 64Mb 130 ns/15 ns, x16, E, Auto M⁵</p> </div>

¹ Radiation Hardened

² Latch-up Immune

³ Qualified Manufacturers List Level V, per military specification MIL-PRF-38535

⁴ Single-Event Latch-Up Immune



⁵ AEC-Q100 Grade 1




* E = Military: -55°C to +125°C

M = Automotive: -40°C to +125°C

Status Availability

EOL (Last-Time-Ship)

Concept 
 Development 
 Sampling 
 Production 



Package Offerings



x8 Serial Memory Packages

Family	Interface	Series	Density	Device	SOIC-16 300 mil	BGA24 8 x 8 mm/5 x 5 Ball	BGA24 8 x 6 mm/5 x 5 Ball	KGD	
Semper™ Flash	HyperBus™	HS-T ¹	256Mb	S28HS256T			CF	CF	
			512Mb	S28HS512T			✓	CF	
			1Gb	S28HS01GT		UD		CF	
			2Gb	S28HS02GT		CF			
			4Gb	S28HS04GT		CF			
		HS-T ²	256Mb	S26HS256T				CF	CF
			512Mb	S26HS512T				✓	CF
			1Gb	S26HS01GT		UD		CF	
			2Gb	S26HS02GT		CF			
			4Gb	S26HS04GT		CF			
		HL-T ¹	256Mb	S28HL256T				CF	CF
			512Mb	S28HL512T				✓	CF
			1Gb	S28HL01GT		UD		CF	
			2Gb	S28HL02GT		CF			
			4Gb	S28HL04GT		CF			
		HL-T ²	256Mb	S26HL256T				CF	CF
			512Mb	S26HL512T				✓	CF
			1Gb	S26HL01GT		UD		CF	
			2Gb	S26HL02GT		CF			
			4Gb	S26HL04GT		CF			
HyperFlash		KS-S ³	128Mb	S26KS128S			✓	UD	
			256Mb	S26KS256S			✓	CF	
			512Mb	S26KS512S			✓	CF	
		KL-S ³	128Mb	S26KL128S				✓	CF
			256Mb	S26KL256S				✓	CF
QSPI	QSPI	FS-S Dual Quad	256Mb	S79FS256S	CF		CF		
			512Mb	S79FS512S	CF		CF		
			1Gb	S79FS01GS			✓		
		FL-S Dual Quad	256Mb	S79FL256S		✓			
			512Mb	S79FL512S		✓			
			1Gb	S79FL01GS				✓	

¹ Octal Interface (xSPI Profile 1.0)
² HyperBus Interface (xSPI Profile 2.0)
³ HyperBus Interface

CF = Contact Factory
UD = Under Development

x4 Serial NOR Flash Memory Packages

Family	Interface	Series	Density	Device	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	
Semper™ Flash	QSPI	HS-T	256Mb	S25HS256T		CF			CF		CF		CF	
			512Mb	S25HS512T		✓			✓		✓		CF	
			1Gb	S25HS01GT		UD					UD		CF	
			2Gb	S25HS02GT							CF			
			4Gb	S25HS04GT							CF			
		HL-T	256Mb	S25HL256T		CF		CF		CF		CF		CF
			512Mb	S25HL512T		✓		✓		✓		✓		CF
			1Gb	S25HL01GT		UD					UD		CF	
			2Gb	S25HL02GT							UD			
			4Gb	S25HL04GT							CF			
QSPI	QSPI	FS-S	64Mb	S25FS064S	✓			✓			✓		✓	
			128Mb	S25FS128S	✓	CF		✓	✓		✓	✓	CF	
			256Mb	S25FS256S		✓			✓	✓		✓	✓	
			512Mb	S25FS512S		✓			✓	✓		✓	✓	
			1Gb	S70FS01GS		✓					✓		✓	
		FL-S	128Mb	S25FL127S		✓	✓		✓			✓	✓	
			128Mb	S25FL128S			✓			✓		✓	✓	
			256Mb	S25FL256S			✓			✓		✓	✓	
			512Mb	S25FL512S			✓					✓	✓	✓
			1Gb	S70FL01GS			✓					✓		
		FL-L	64Mb	S25FL064L		✓	✓		✓			✓	✓	CF
			128Mb	S25FL128L		✓	✓		✓			✓	✓	CF
			256Mb	S25FL256L			✓			✓		✓	✓	CF

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					✓		✓	✓
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	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				✓	✓	

Flash and RAM Memory MCP 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)	133-Ball FBGA (0.5-mm pitch)
S71KS-S	128Mb	64Mb	✓				
	256Mb	64Mb	✓				
	512Mb	64Mb	✓				
S71KL-S	128Mb	64Mb	✓				
	256Mb	64Mb	✓				
	512Mb	64Mb	✓				
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				✓	



CYPRESS[®]
EMBEDDED IN TOMORROW[™]