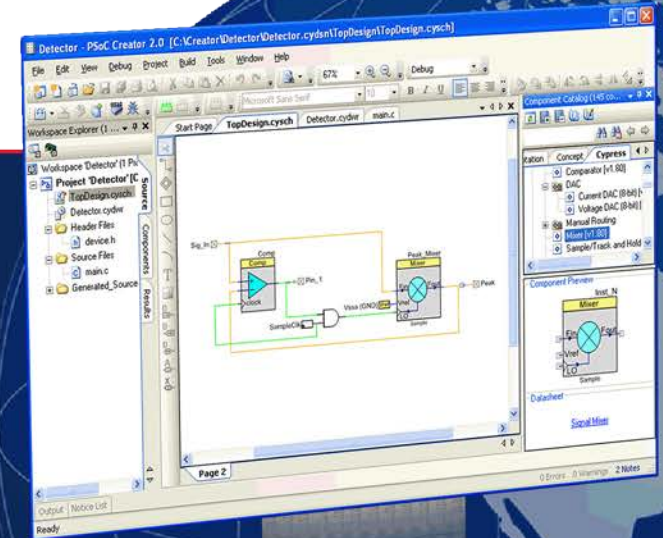


# Cypress Roadmap: Nonvolatile RAM

Q1 2017



# nvSRAM Portfolio

High Density | High Speed



## Parallel nvSRAM

## LPC<sup>6</sup> nvSRAM

512Kb-16Mb

64Kb-256Kb

<b>CY14B116R/S</b> 16Mb; 3.0 V 25, 45 ns; x32; Ind <sup>1</sup> RTC <sup>2</sup>	<b>CY14B116K/L</b> 16Mb; 3.0 V 25, 45 ns; x8; Ind RTC	<b>CY14V116F/G</b> 16Mb; 3.0, 1.8 V I/O 30 ns; ONFI <sup>3</sup> 1.0 x8, x16; Ind	Higher Densities nvSRAM NDA Required Contact Sales
<b>CY14B104NA</b> 4Mb; 3.0 V 25, 45 ns; x16 Auto E <sup>4</sup> ; RTC	<b>CY14B108K/L</b> 8Mb; 3.0 V 25, 45 ns; x8; Ind RTC	<b>CY14B108M/N</b> 8Mb; 3.0 V 25, 45 ns; x16; Ind RTC	<b>CY14B116M/N</b> 16Mb; 3.0 V 25, 45 ns; x16; Ind RTC
<b>CY14B104K/LA</b> 4Mb; 3.0 V 25, 45 ns; x8; Ind RTC	<b>CY14V104LA</b> 4Mb; 3.0, 1.8 V I/O 25, 45 ns; x8; Ind	<b>CY14B104M/NA</b> 4Mb; 3.0 V 25, 45 ns; x16; Ind RTC	<b>CY14V104NA</b> 4Mb; 3.0, 1.8 V I/O 25, 45 ns; x16; Ind
<b>CY14B101KA/LA</b> 1Mb; 3.0 V 25, 45 ns; x8; Ind RTC	<b>CY14V101LA</b> 1Mb; 3.0, 1.8 V I/O 25, 45 ns; x8; Ind	<b>CY14B101MA/NA</b> 1Mb; 3.0 V 25, 45 ns; x16; Ind RTC	<b>CY14V101NA</b> 1Mb; 3.0, 1.8 V I/O 25, 45 ns; x16; Ind

Higher Densities nvSRAM NDA Required Contact Sales		
<b>CY14V101PS</b> 1Mb; 3.0, 1.8 V I/O 108-MHz QSPI <sup>7</sup> ; Ind Ext. Ind <sup>8</sup> ; RTC	<b>CY14V101QS</b> 1Mb; 3.0, 1.8 V I/O 108-MHz QSPI; Ind Ext. Ind	<b>CY14B101I</b> 1Mb; 3.0 V 3.4-MHz I <sup>2</sup> C; Ind RTC
<b>CY14B101P</b> 1Mb; 3.0 V 40-MHz SPI; Ind RTC	<b>CY14B512P</b> 512Kb; 3.0 V 40-MHz SPI; Ind RTC	<b>CY14B512I</b> 512Kb; 3.0 V 3.4-MHz I <sup>2</sup> C; Ind RTC

<b>CY14B256KA/LA</b> 256Kb; 3.0 V 25, 45 ns; x8; Ind RTC	<b>CY14V/U256LA</b> 256Kb; 3.0, 1.8V I/O 35 ns; x8; Ind
<b>CY14E256LA</b> 256Kb; 5.0 V 25, 45 ns; x8; Ind	<b>STK14C88-5</b> 256Kb; 5.0 V 35, 45 ns; x8; Mil <sup>5</sup>
<b>STK11C68-5</b> 64Kb; 5.0 V 35, 55 ns; x8; Mil <sup>5</sup>	<b>STK12C68-5</b> 64Kb; 5.0 V 35, 55 ns; x8; Mil

<b>CY14B256P</b> 256Kb; 3.0 V 40-MHz SPI; Ind RTC	<b>CY14B256I</b> 256Kb; 3.0 V 3.4-MHz I <sup>2</sup> C; Ind RTC
<b>CY14B064P</b> 64Kb; 3.0 V 40-MHz SPI; Ind RTC	<b>CY14B064I</b> 64Kb; 3.0 V 3.4-MHz I <sup>2</sup> C; Ind RTC

<sup>1</sup> Industrial grade -40°C to +85°C  
<sup>2</sup> Real-time clock  
<sup>3</sup> Open NAND flash interface

<sup>4</sup> AEC-Q100 -40°C to +125°C  
<sup>5</sup> Military grade -55°C to +125°C  
<sup>6</sup> Low-pin-count

<sup>7</sup> Quad serial peripheral interface  
<sup>8</sup> Extended Industrial grade -40°C to +105°C

Status Availability

Concept	Development	Sampling	Production
		QQYY	QQYY

# F-RAM Portfolio

Low Power | High Endurance



	LPC <sup>1</sup> F-RAM			Processor Companion	Wireless Memory	Parallel F-RAM	
512Kb-8Mb	<b>FM25V20A</b> 2Mb; 2.0-3.6 V 40-MHz SPI; Ind <sup>2</sup>	<b>CY15B104Q</b> 4Mb; 2.0-3.6 V 40-MHz SPI; Ind	<b>Higher Densities F-RAM</b> NDA Required Contact Sales			<b>FM22L16/LD16</b> 4Mb; 2.7-3.6 V 55 ns; x8; Ind	
	<b>CY15B102Q</b> 2Mb; 2.0-3.6 V 25-MHz SPI; Auto E <sup>3</sup>	<b>FM25V10/VN10</b> 1Mb; 2.0-3.6 V 40-MHz SPI; Ind, Auto A	<b>FM24V10/VN10</b> 1Mb; 2.0-3.6 V 3.4-MHz I <sup>2</sup> C; Ind, Auto A			<b>FM28V102A</b> 1Mb; 2.0-3.6 V 60 ns; x16; Ind	<b>FM28V202A</b> 2Mb; 2.0-3.6 V 60 ns; x16; Ind
	<b>FM25V05</b> 512Kb; 2.0-3.6 V 40-MHz SPI; Ind, Auto A		<b>FM24V05</b> 512Kb; 2.0-3.6 V 3.4-MHz I <sup>2</sup> C; Ind, Auto A			<b>CY15B101N</b> 1Mb; 2.0-3.6 V 60 ns; x16; Auto A	<b>CY15B102N</b> 2Mb; 2.0-3.6 V 60 ns; x16; Auto A
4Kb-256Kb	<b>FM25V02A/W256</b> 256Kb; V02A: 2.0-3.6 V W256: 2.7-5.5 V 40-MHz SPI; Ind, Auto A	<b>FM24V02A/W256</b> 256Kb; V02A: 2.0-3.6 V W256: 2.7-5.5 V 3.4-MHz I <sup>2</sup> C; Ind, Auto A	<b>FM33256</b> 256Kb; 3.3V; 16-MHz SPI Ind; RTC <sup>5</sup> ; Power Fail Watchdog; Counter	<b>Wireless Memory</b> NDA Required Contact Sales	<b>FM28V020</b> 256Kb; 2.0-3.6 V 70 ns; x8; Ind	<b>FM18W08</b> 256Kb; 2.7-5.5 V 70 ns; x8; Ind	
	<b>FM25V01A</b> 128Kb; 2.0-3.6 V 40-MHz SPI; Ind, Auto A	<b>FM24V01A</b> 128Kb; 2.0-3.6 V 3.4-MHz I <sup>2</sup> C; Ind, Auto A	<b>FM31256/31(L)278</b> 256Kb; 3.3, 5.0V; 1-MHz I <sup>2</sup> C; Ind; RTC; Power Fail; Watchdog; Counter		<b>FM1808B</b> 256Kb; 5.0 V 70 ns; x8; Ind	<b>FM16W08</b> 64Kb; 2.7-5.5 V 70 ns; x8; Ind	
	<b>FM25640/CL64</b> 64Kb; 3.3, 5.0 V 20-MHz SPI; Ind, Auto E <sup>4</sup>	<b>FM24C64/CL64</b> 64Kb; 3.3, 5.0 V 1-MHz I <sup>2</sup> C; Ind, Auto E	<b>FM3164/31(L)276</b> 64Kb; 3.3, 5.0 V; 1-MHz I <sup>2</sup> C; Ind; RTC; Power Fail; Watchdog; Counter				
	<b>FM25C160/L16</b> 16Kb; 3.3, 5.0 V 20-MHz SPI; Ind, Auto E	<b>FM24C16/CL16</b> 16Kb; 3.3, 5.0 V 1-MHz I <sup>2</sup> C; Ind, Auto A					
	<b>FM25040/L04</b> 4Kb; 3.3, 5.0 V 20-MHz SPI; Ind, Auto E	<b>FM24C04/CL04</b> 4Kb; 3.3, 5.0 V 1-MHz I <sup>2</sup> C; Ind, Auto A					

<sup>1</sup> Low-pin-count

<sup>2</sup> Industrial grade -40°C to +85°C

<sup>3</sup> AEC-Q100 -40°C to +85°C

<sup>4</sup> AEC-Q100 -40°C to +125°C

<sup>5</sup> Real-time clock

Status	Concept	Development	Sampling	Production
Availability				

# nvSRAM Packages



Family	Density	8-pin SOIC	8-pin DFN	16-pin SOIC	28-pin SOIC	28-pin CDIP	28-pad LCC	32-pin SOIC	44-pin TSOP II	48-ball FBGA	48-pin SSOP	48-pin TSOP I	54-pin TSOP II	60-ball FBGA	165-ball FBGA	Wafer
Parallel	64Kb				✓	✓	✓									
	256Kb				✓	✓	✓	✓	✓	✓	✓					
	1Mb							✓	✓	✓	✓		✓			
	4Mb								✓	✓			✓			✓
	8Mb								✓	✓			✓			
	16Mb								✓			✓	✓	✓	✓	✓
LPC	64Kb	✓		✓												
	256Kb	✓	✓	✓												
	512Kb	✓		✓												
	1Mb	✓	✓	✓												
I <sup>2</sup> C	64Kb	✓		✓												
	256Kb			✓												
	512Kb			✓												
	1Mb	✓		✓												

# F-DRAM Packages



Family	Density	8-pin SOIC	8-pin DFN	8-pin EIAJ	14-pin SOIC	28-pin SOIC	28-pin TSOP I	32-pin TSOP I	44-pin TSOP II	48-ball FBGA	Wafer
LPC	4Kb	✓	✓								
	16Kb	✓	✓								
	64Kb	✓	✓								
	128Kb	✓									
	256Kb	✓	✓								
	512Kb	✓									
	1Mb	✓									
	2Mb			✓	✓						
	4Mb		✓	✓							
I <sup>2</sup> C	4Kb	✓									
	16Kb	✓	✓								
	64Kb	✓	✓								
	128Kb	✓									
	256Kb	✓									
	512Kb	✓									
	1Mb	✓									
Processor Companion	64Kb				✓						
	256Kb				✓						
Parallel	64Kb					✓					
	256Kb					✓	✓	✓			✓
	1Mb							✓	✓		✓
	2Mb								✓		✓
	4Mb								✓	✓	

# 4Mb SPI Serial F-RAM

## Applications

- Multifunction printers
- Industrial controls and automation
- Medical wearables
- Test and measurement equipment
- Smart meters

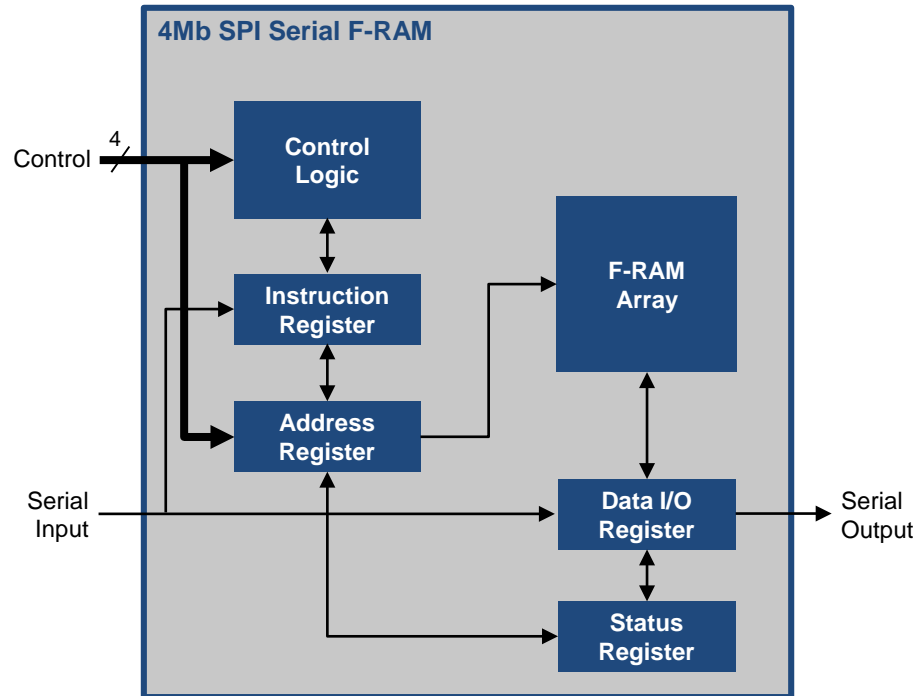
## Features

- 40-MHz SPI interface
- 100-trillion read/write cycle endurance
- Operating voltage range: 2.0-3.6 V
- Low (8- $\mu$ A) sleep current
- 100-year data retention
- Industrial temperature operation
- Packages: 8-pin TDFN, 8-pin SOIC

## Collateral

Preliminary Datasheet: [Contact Sales](#)

## Block Diagram



## Availability

Sampling: Now  
Production: Now

# 1Mb Quad SPI nvSRAM

## Applications

Computing and networking  
Industrial automation  
RAID storage

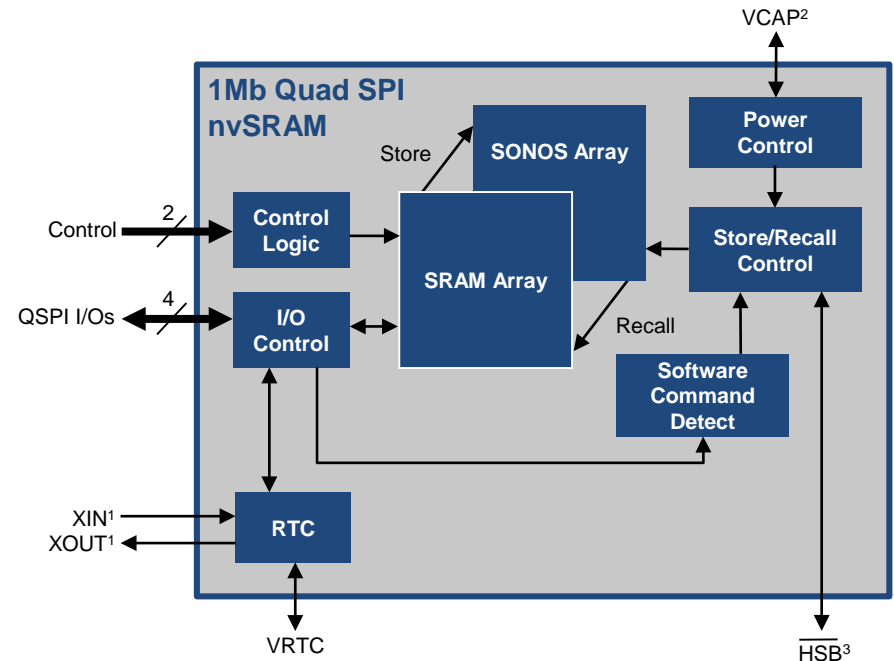
## Features

Quad SPI interface: 108 MHz  
Unlimited write endurance  
One million store cycles on power fail  
Data retention of 20 years at 85°C  
Operating voltages: 3.0 V, 1.8-V I/O  
Low standby (280-µA) and sleep (10-µA) currents  
Industrial temperature range: -40°C to +85°C  
Extended Industrial temperature range: -40°C to +105°C  
Integrated, high-accuracy real-time clock (RTC)  
Package: 16-SOIC

## Collateral

Final Datasheet: [CY14V101QS](#)

## Block Diagram



## Availability

Sampling: Now  
Production: Now

<sup>1</sup> Crystal connections

<sup>2</sup> External capacitor connection

<sup>3</sup> Hardware store busy