SkyHigh Memory
S6
MCP LPDDR4X + SLC NAND

SLC NAND MCP MEMORY

SkyHigh Memory

Introduction

The SkyHigh Memory S6 MCP family, provides an integrated solution by stacking in one package SLC NAND and LPDRAM4x Memory components. The SkyHigh Memory S6 family are designed for applications that need high reliability and performance with lower power consumption within small form factor.

SkyHigh Memory MCP products are available in densities of 4Gb SLC NAND +4Gb LPDDR4x and 8Gb SLC NAND +8Gb LPDDR4x and offered in small JEDEC compliant 149- ball BGA packages.

SLC NAND FEATURES

ERROR CORRECTION

• 4-bit ECC

SUPPLY VOLTAGE

• 1.8 V (1.70 to 1.95)

ARCHITECTURE

• x8 IO Width

• 4KB page (4/8Gb NAND)

POWER

• Read/Program/Erase: 35mA (max)

• Standby: 100uA(max)

LPDDR4x SDRAM FEATURES

SPEED

• 2133 MHz (4Gb/8Gb LPDDR4x)

SUPPLY VOLTAGE

• VDD1 = 1.8V (1.70 to 1.95)

• VDD2 = 1.1V (1.06 to1.17)

• VDDQ = 0.6V (0.57 to 0.65V)

ARCHITECTURE

• x16 IO Width

• 8 internal banks of 16Mb

• 16n (256bit) prefetch DDR

LPDDR4x SDRAM FEATURES

PERFORMANCE

• Programmable RL (Read Latency) and WL (Write Latency)

• Burst length:
- 16 (def.), 32 and On-the-fly
- On the fly mode is enabled by Mode Register

RELIABILITY

• Auto refresh and self-refresh supported
- All bank auto refresh and directed per bank auto refresh supported

• Auto TCSR (Temperature Compensated Self Refresh)

• PASR (Partial Array Self Refresh) by Bank Mask and Segment Mask

MCP FEATURES

TEMPERATURE RANGE

• Industrial (-40°C to +85°C)

• Industrial Plus (-40°C to +105°C)

• Automotive AEC-Q100 Grade 3 (-40°C to +85°C)

• Automotive AEC-Q100 Grade 2 (-40°C to +105°C)

PACKAGES (Pb-free)

• 149-ball WFBGA (9.5 x 8 x 0.7 mm)

BENEFITS of SkyHigh MCP

Reduce system costs and help Space Saving

• SkyHigh Memory MCPs reduces system cost by moving from a dual-chip memory to a single chip memory solution.

• SkyHigh Memory MCPs saves more than 50% space on the PCB versus using more than one discrete memory package thanks to stacked components and shared pins.

Increase Performance

• SkyHigh Memory MCPs enhances overall system performance with shortened interconnection between the components.

• SkyHigh Memory 8Gb LPDRAM4x IO speed can achieve up to 2133Mhz and a bandwidth of 4266Mbs.

Reduce Power

• The LPDDR4x technology not only reduces the output driver power by 55% but also reduces the DRAM power consumption by more than 20% over the LPPDR3/4 technologies.

• The LPDDR4x technology IO voltage is 0.6V while it is 1.1 V for LPDDR4 and 1.2V for LPPDR3.

Longer System life

• SkyHigh Memory MCP SLC NAND Flash Memory supports an endurance of 100,000 Program/Erase cycles to achieve the longest system life.

Long-Term Support and One-Stop Shop

• SkyHigh Memory MCP SLC NAND Flash Memory SLC NAND and LPDDR4x wafers comes from our parent company.

• SkyHigh LMemory MCP comes with a 5-year+ product longevity commitments to satisfy the needs of your long life-cycle products.
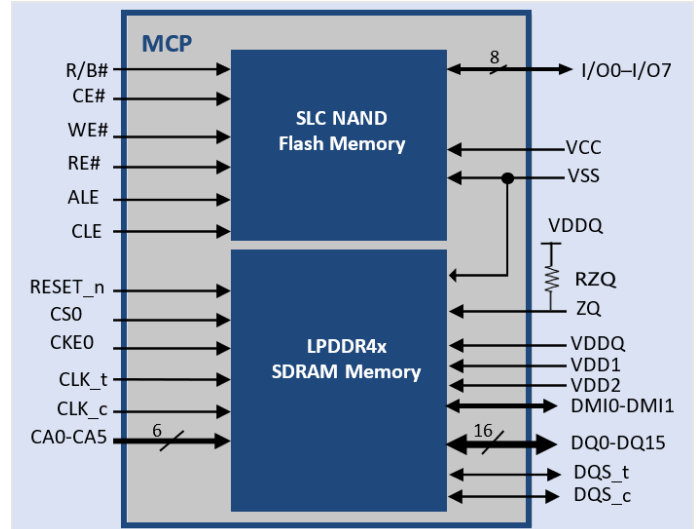
TARGET APPLICATIONS

As 5G and Embedded Internet of Things (IoT) applications expand into market including industrial, transportation, home automation, health care and automotive, the need to increase computing and data storage at the end node increases. SkyHigh Memory MCP based on LPDDR4x and SLC NAND provide an answer to this requirement by providing high reliability data storage solution with high performance, lower power consumption in a small form factor.

LPDDR4X / SLC NAND MCP BLOCK DIAGRAM

MCP FLASH MEMORY PRODUCT SELECTOR GUIDE

Part Number	LPDDR4x			SLC NAND			Package	Package Material	Temperature Range
	Dens.	IO width	Speed	Dens.	IO Width	Page Size			
S6AA4411IA10	2*2Gb	X16	1866MHz	4Gb	X8	4KB	149-ball BGA	Low-Halogen, Lead (Pb)-free	I = Industrial (-40°C to +85°C)
S6AA4411VA10	2*2Gb	X16	1866MHz	4Gb	X8	4KB			V= Industrial-plus (-40°C to +105°C)
S6AA4411AA10	2*2Gb	X16	1866MHz	4Gb	X8	4KB			A = Industrial, AECQ-100 (-40°C to+85°C)
S6AA4411BA10	2*2Gb	X16	1866MHz	4Gb	X8	4KB			B = Industrial-plus, AECQ-100 (-40°C to +105°C)
S6AA8803IA10	8Gb	X16	2133MHz	2*4Gb	X8	4KB			I = Industrial (-40°C to +85°C)
S6AA8803VA10	8Gb	X16	2133MHz	2*4Gb	X8	4KB			V= Industrial-plus (-40°C to +105°C)
S6AA8803VA10	8Gb	X16	2133MHz	2*4Gb	X8	4KB			A = Industrial, AECQ-100 (-40°C to+85°C)
S6AA8803AA10	8Gb	X16	2133MHz	2*4Gb	X8	4KB			B = Industrial-plus, AECQ-100 (-40°C to +105°C)
S6AA8803BA10	8Gb	X16	2133MHz	2*4Gb	X8	4KB			B = Industrial-plus, AECQ-100 (-40°C to +105°C)

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