



DDR4 SODIMM Product Datasheet

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Description

The Silicon Power Computer & Communications SFU & SFE series products are 260-Pin low power Double Data Rate 4 (DDR4) Synchronous DRAM Small Outline Dual In-Line Memory Module (SODIMM).

The SFU series organized as a one rank 512Mx64, 1024Mx64 high-speed memory array or two ranks 512Mx64, 1024Mx64, 2048Mx64 high-speed memory array, The module uses four 512Mx16(4GB), eight 256Mx16(4GB), 512Mx8(4GB), 1Gx8(8GB), sixteen 512Mx8 (8GB), 1Gx8(16GB) DDR4 SDRAMs in BGA packages.

The SFE series organized as a one rank 512Mx72, high-speed memory array or two ranks 512Mx72, high-speed memory array, The module uses nine 512Mx8(4GB), eighteen 512Mx8 (8GB) DDR4 SDRAMs in BGA packages.

This DIMM are manufactured using raw cards developed for broad industry use as reference designs. The use of these common design files minimizes electrical variation between suppliers.

DDR4 SDRAM SODIMM provide a high-performance, flexible 8-byte interface in a space-saving footprint.

The DIMM is intended for use in applications operating of 1066MHz, 1200MHz, 1333MHz clock speeds and achieves high-speed data transfer rates of 2133Mbps, 2400Mbps, 2666Mbps. Prior to any access operation, the device CAS latency and burst/length/operation type must be programmed into the DIMM by address inputs A0-A14 (512Mx8) and I/O inputs BA0, BA1, BG0, BG1 using the mode register set cycle.

The DIMM uses serial presence-detect implemented via a serial EEPROM using a standard IIC protocol.

Features

- DDR4 functionality and operations supported as defined in the component data sheet
- 260pin, Small Outline Dual In-line Memory Module (SODIMM)
- Fast data transfer rates:
 - DDR4-2133(PC4-17000)
 - DDR4-2400(PC4-19200)
 - DDR4-2666(PC4-21300)
- Single or Dual rank
- SFU: 4GB (512Meg x 64), 8GB (1Giga x 64), 16GB (2Giga x 64)
- SFE: 4GB (512Meg x 72), 8GB (1Giga x 72)
- $V_{DD} = V_{DDQ} = 1.2V \pm 0.06V$
- $V_{DDSPD} = 1.7V$ to 3.6V
- $V_{PP} = 2.5V$ (DRAM Activating Power Supply:)
- 16 internal banks; 4 groups of 4 banks each
- Nominal and dynamic on-die termination (ODT) for data, strobe, and mask signals
- Low-power auto self refresh (LPASR)
- Data bus inversion (DBI) for data bus
- Fixed burst chop (BC) of 4 and burst length (BL) of 8 via the mode register set (MRS)
- Fly-by topology
- Terminated control, command, and address bus
- This product is in compliance with the RoHS directive
- Integrated serial presence-detect (SPD) EEPROM
- Gold edge contacts

Module Specification (Single DIMM Package)

Part Number	Module Density & Configuration	Bandwidth	Data Rate	Timing	Operator Voltage
				tCL-tRCD-tRP	
SP004GBSFU213W01(2)	4GB (512Mx64)	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP004GBSFU240W01(2)	256Mx16 2Ranks	19.2GB/s	DDR4-2400	17-17-17	1.2V
SP004GBSFU213N01(2)	4GB (512Mx64) 512Mx8 1Rank	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP004GBSFU240N01(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP004GBSFU266N01(2)		21.3GB/s	DDR4-2666	19-19-19	1.2V
SP004GBSFU213C01(2)	4GB (512Mx64)	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP004GBSFU240C01(2)	512Mx16 1Rank	19.2GB/s	DDR4-2400	17-17-17	1.2V
SP008GBSFU213N01(2)	8GB (1Gx64) 512Mx8 2Ranks	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP008GBSFU240N01(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP008GBSFU266N01(2)		21.3GB/s	DDR4-2666	19-19-19	1.2V
SP008GBSFU213C01(2)	8GB (1Gx64)	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP008GBSFU240C01(2)	512Mx16 2Ranks	19.2GB/s	DDR4-2400	17-17-17	1.2V
SP008GBSFU213B01(2)	8GB (1Gx64) 1Gx8 1Rank	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP008GBSFU240B01(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP008GBSFU266B01(2)		21.3GB/s	DDR4-2666	19-19-19	1.2V
SP016GBSFU213B01(2)	16GB (2Gx64) 1Gx8 2Ranks	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP016GBSFU240B01(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP016GBSFU266B01(2)		21.3GB/s	DDR4-2666	19-19-19	1.2V

Note:

1. This document supports all SFU & SFE Series DDR4 260Pin SODIMM products.
2. Some item was being EOL in this list, Please contact with our sales Dep.
3. All part numbers end with a double-digit code is for customize use only.

Example: SP004GBSFU213N01XX

Module Specification (Kit Package)

Part Number	Module Density & Configuration	Bandwidth	Data Rate	Timing	Operator
				(tCL-tRCD-tRP)	Voltage
SP008GBSFU213W21(2)	4GB x 2	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP008GBSFU240W21(2)	Kit Package	19.2GB/s	DDR4-2400	17-17-17	1.2V
SP008GBSFU213N21(2)	4GB x 2 Kit Package	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP008GBSFU240N21(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP008GBSFU266N21(2)		21.3GB/s	DDR4-2666	19-19-19	1.2V
SP008GBSFU213C21(2)	4GB x 2	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP008GBSFU240C21(2)	Kit Package	19.2GB/s	DDR4-2400	17-17-17	1.2V
SP016GBSFU213N21(2)	8GB x 2 Kit Package	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP016GBSFU240N21(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP016GBSFU266N21(2)		21.3GB/s	DDR4-2666	19-19-19	1.2V
SP016GBSFU213C21(2)	8GB x 2	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP016GBSFU240C21(2)	Kit Package	19.2GB/s	DDR4-2400	17-17-17	1.2V
SP016GBSFU213B21(2)	8GB x 2 Kit Package	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP016GBSFU240B21(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP016GBSFU266B21(2)		21.3GB/s	DDR4-2666	19-19-19	1.2V
SP032GBSFU213B21(2)	16GB x 2 Kit Package	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP032GBSFU240B21(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP032GBSFU266B21(2)		21.3GB/s	DDR4-2666	19-19-19	1.2V

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Example: SP008GBSFU213N21XX