



DDR4 UDIMM Product Datasheet

廣穎電通股份有限公司
Silicon Power Computer & Communications Inc.
TEL: 886-2 8797-8833 FAX: 886-2 8751-6595
台北市114內湖區洲子街106號7樓
7F, No.106, ZHO-Z ST. NEIHU DIST, 114, TAIPEI, TAIWAN,

RESTRICTIONS OF DATASHEET USE

- This document is proprietary, confidential and intended solely for the recipient. No part of this document may be disclosed in any manner to a third party or reproduced without the prior written consent of Silicon Power. No implied, by estoppel or otherwise, to any intellectual property rights is granted by this document.
- Except as provided in any term and conditions, and/or any agreements in written by Silicon Power , Silicon Power assumes no responsibility whatever, including but not limited to, indirect, consequential, special, punitive, incidental damages, loss, loss of profits, loss of opportunities, business interruption and data. Silicon Power disclaims any express or implies warranty and conditions related to sale, use of product, or information, including warranty or conditions of merchantability, fitness for a particular purpose, accuracy of information or non-infringement.
- Moreover, Silicon Power may reserve the right to make change to the information of this document at any time without notice.

© 2016 Silicon Power Computer & Communications Inc.. All rights reserved.



SP Silicon
Power
CONFIDENTIAL

Description

The Silicon Power Computer & Communications LFU series products are 288-Pin low power Double Data Rate 4 (DDR4) Synchronous DRAM Unbuffered Dual In-Line Memory Module (UDIMM), organized as a one rank 512Mx64, high-speed memory array or two ranks 512Mx64, 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 Silicon Power Computer & Communications industrial LFE series products are 288-Pin Double Data Rate 4 (DDR4) Synchronous DRAM Unbuffered Dual In-Line Memory Module with ECC (ECC UDIMM), organized as a one rank 512Mx72, 1024Mx72, high-speed memory array or two ranks 2048Mx72, high-speed memory array, The module uses nine 512Mx8(4GB)1Gx8(8GB), eighteen 1Gx8(16GB) 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 DIMM provide a high-performance, flexible 8-byte interface in a 5.25" long space-saving footprint.

The DIMM is intended for use in applications operating of 1066MHz, 1200MHz clock speeds and achieves high-speed data transfer rates of 2133Mbps, 2400Mbps. 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, 256Mx16),A0-A15(1Gx8,512Mx16) 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
- 288pin, unbuffered dual in-line memory module (UDIMM)
- Fast data transfer rates:
 - DDR4-2133(PC4-17000)
 - DDR4-2400(PC4-19200)
 - DDR4-2666(PC4-21300)
- Single or Dual rank
- LFU Series UDIMM
 - 4GB (512M x 64), 8GB (1G x 64), 16GB(2G x 64)
- LFE Series ECC UDIMM
 - 4GB(512M x 72), 8GB (1G x 72), 16GB(2G 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

DDR4 LFU Series Module Specification (Single DIMM Package)

Part Number	Module Density & Configuration	Bandwidth	Data Rate	Timing	Operator Voltage
				(tCL-tRCD-tRP)	
SP004GBLFU213W01(2)	4GB (512Mx64) 256Mx16 2Ranks	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP004GBLFU240W01(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP004GBLFU266W01(2)		21.3GB/s	DDR4-2666	19-19-19	1.2V
SP004GBLFU213C01(2)	4GB (512Mx64) 512Mx16 1Rank	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP004GBLFU240C01(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP004GBLFU266C01(2)		21.3GB/s	DDR4-2666	19-19-19	1.2V
SP004GBLFU213N01(2)	4GB (512Mx64) 512Mx8 1Rank	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP004GBLFU240N01(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP004GBLFU266N01(2)		21.3GB/s	DDR4-2666	19-19-19	1.2V
SP008GBLFU213N01(2)	8GB (1Gx64) 512Mx8 2Ranks	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP008GBLFU240N01(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP008GBLFU266N01(2)		21.3GB/s	DDR4-2666	19-19-19	1.2V
SP008GBLFU213B01(2)	8GB (1Gx64) 1Gx8 1Rank	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP008GBLFU240B01(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP008GBLFU266B01(2)		21.3GB/s	DDR4-2666	19-19-19	1.2V
SP016GBLFU213B01(2)	16GB (2Gx64) 1Gx8 2Ranks	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP016GBLFU240B01(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP016GBLFU266B01(2)		21.3GB/s	DDR4-2666	19-19-19	1.2V

Note:

1. This document supports all LFU Series DDR4 288Pin UDIMM 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: SP004GBLFU213N01XX

DDR4 LFU Series Module Specification (Kit Package)

Part Number	Module Density & Configuration	Bandwidth	Data Rate	Timing	Operator Voltage
				(tCL-tRCD-tRP)	
SP008GBLFU213W21(2)	4GB x 2 Kit Package	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP008GBLFU240W21(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP008GBLFU266W21(2)		21.3GB/s	DDR4-2666	19-19-19	1.2V
SP008GBLFU213C21(2)	4GB x 2 Kit Package	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP008GBLFU240C21(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP008GBLFU266C21(2)		21.3GB/s	DDR4-2666	19-19-19	1.2V
SP008GBLFU213N21(2)	4GB x 2 Kit Package	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP008GBLFU240N21(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP008GBLFU266N21(2)		21.3GB/s	DDR4-2666	19-19-19	1.2V
SP016GBLFU213N21(2)	8GB x 2 Kit Package	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP016GBLFU240N21(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP016GBLFU266N21(2)		21.3GB/s	DDR4-2666	19-19-19	1.2V
SP016GBLFU213B21(2)	8GB x 2 Kit Package	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP016GBLFU240B21(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP032GBLFU213B21(2)	16GB x 2 Kit Package	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP032GBLFU240B21(2)		19.2GB/s	DDR4-2400	17-17-17	1.2V
SP016GBLFU213N41(2)	4GB x 4 Kit Package	17.0GB/s	DDR4-2133	15-15-15	1.2V
SP032GBLFU213N41(2)	8GB x 4 Kit Package	17.0GB/s	DDR4-2133	15-15-15	1.2V

Note:

1. This document supports all LFU Series DDR4 288Pin UDIMM 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: SP008GBLFU213N21XX

DDR4 LFE Series Module Specification

Part Number	Module Density & Configuration	Bandwidth	Data Rate	Timing	Operator Voltage
				tCL-tRCD-tRP	
SP008GBLFE266B01	8GB (1Gx72) 1Gx8 1Rank	21.3GB/s	DDR4-2666	19-19-19	1.2V
SP016GBLFE266B01	16GB (2Gx72) 1Gx8 2Ranks	21.3GB/s	DDR4-2666	19-19-19	1.2V

Note:

1. This document supports all industrial LFE Series DDR4 288Pin ECC UDIMM products.
2. Some items were 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: SP008GBLFE266B01XX

