



DDR3(L) UDIMM Product Datasheet

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Description

The Silicon Power Computer & Communications LTU series products are 240-Pin Double Data Rate 3 (DDR3) Synchronous DRAM Unbuffered Dual In-Line Memory Module (UDIMM), organized as a one rank 128Mx64, 256Mx64 or 512Mx64, high-speed memory array or two ranks 128Mx64, 256Mx64, 512Mx64, 1024Mx64 high-speed memory array, The module uses four 128x16(1GB), 256x16(2GB) eight 64Mx16(1GB), 128Mx8 (1GB), 128Mx16(2GB), 256Mx8 (2GB), 256Mx16 (4GB), 512Mx8 (4GB), sixteen 128Mx8 (2GB), 256Mx8 (4GB), 512Mx8 (8GB) DDR3 SDRAMs in BGA packages

The Silicon Power Computer & Communications LTE series products are 240-Pin Double Data Rate 3 (DDR3) Synchronous DRAM Unbuffered Dual In-Line Memory Module (UDIMM), organized as a one rank 128Mx72, 256Mx72 or 512Mx72, high-speed memory array or two ranks 128Mx72, 256Mx72, 512Mx72, 1024Mx72 high-speed memory array, The module uses nine 128Mx8 (1GB), 256Mx8 (2GB), 512Mx8 (4GB), eighteen 128Mx8 (2GB), 256Mx8 (4GB), 512Mx8 (8GB) DDR3 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.

DDR3 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 533MHz, 667MHz, 800MHz clock speeds and achieves high-speed data transfer rates of 1066, 1333, 1600Mbps. Prior to any access operation, the device CAS latency and burst/length/operation type must be programmed into the DIMM by address inputs A0-A13(128Mx8 or 128Mx16), A0-A14(256Mx8 or 256Mx16), A0-A15 (512Mx8) and I/O inputs BA0~BA2 using the mode register set cycle.

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

Features

- DDR3 functionality and operations supported as defined in the component data sheet
- 240pin, unbuffered dual in-line memory module (UDIMM)
- Fast data transfer rates:
 - DDR3-1066(PC3-8500)
 - DDR3-1333(PC3-10600)
 - DDR3-1600(PC3-12800)
- Single or Dual rank
- LTU series:1GB(128 Meg x 64), 2GB (256 Meg x 64), 4GB (512Meg x 64), 8GB (1Giga x 64)
- LTE series:1GB(128 Meg x 72), 2GB (256 Meg x 72), 4GB (512Meg x 72), 8GB (1Giga x 72)
- DDR3 Normal Power $V_{DD} = V_{DDQ} = 1.5V \pm 0.075V$
- DDR3L Low Power $V_{DD} = V_{DDQ} = 1.35V (+0.1 \sim -0.067V)$
- $V_{DD} = V_{DDQ} = 1.5V \pm 0.075V$
- $V_{DDSPD} = 3.0V$ to $3.6V$
- Reset pin for improved system stability
- Nominal and dynamic on-die termination (ODT) for data, strobe, and mask signals
- 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
- Adjustable data-output drive strength
- Serial presence-detect (SPD) EEPROM
- Temperature Sensor (ECC UDIMM)
- Gold edge contacts
- Pb-free

DDR3 LTU Series Module Specification (Single DIMM Package)

Part Number	Module Density & Configuration	Bandwidth	Data Rate	Timing	Operator Voltage
				tCL-tRCD-tRP	
SP001GBLTU106S01(2)	1GB (128Mx64)	PC3-8500	DDR3-1066	7-7-7	1.5V
SP001GBLTU133S01(2)	128Mx8 1Rank	PC3-10600	DDR3-1333	9-9-9	1.5V
SP002GBLTU106S01(2)	2GB (256Mx64) 128Mx8 2Ranks	PC3-8500	DDR3-1066	7-7-7	1.5V
SP002GBLTU133S01(2)		PC3-10600	DDR3-1333	9-9-9	1.5V
SP002GBLTU160S01(2)		PC3-12800	DDR3-1600	9-9-9	1.5V
SP002GBLTU106V01(2)	2GB (256Mx64) 256Mx8 1Rank	PC3-8500	DDR3-1066	7-7-7	1.5V
SP002GBLTU133V01(2)		PC3-10600	DDR3-1333	9-9-9	1.5V
SP002GBLTU160V01(2)		PC3-12800	DDR3-1600	11-11-11	1.5V
SP004GBLTU106V01(2)	4GB (512Mx64) 256Mx8 2Ranks	PC3-8500	DDR3-1066	7-7-7	1.5V
SP004GBLTU133V01(2)		PC3-10600	DDR3-1333	9-9-9	1.5V
SP004GBLTU160V01(2)		PC3-12800	DDR3-1600	11-11-11	1.5V
SP004GBLTU133N01(2)	4GB (512Mx64)	PC3-10600	DDR3-1333	9-9-9	1.5V
SP004GBLTU160N01(2)	512Mx8 1Rank	PC3-12800	DDR3-1600	11-11-11	1.5V
SP008GBLTU133N01(2)	8GB (1Gx64)	PC3-10600	DDR3-1333	9-9-9	1.5V
SP008GBLTU160N01(2)	512Mx8 2Ranks	PC3-12800	DDR3-1600	11-11-11	1.5V
SP001GBLTU106T01(2)	1GB (128Mx64) 128Mx16 1Rank	PC3-8500	DDR3-1066	7-7-7	1.5V
SP001GBLTU133T01(2)		PC3-10600	DDR3-1333	9-9-9	1.5V
SP001GBLTU160T01(2)		PC3-12800	DDR3-1600	11-11-11	1.5V
SP002GBLTU106T01(2)	2GB (256Mx64) 128Mx16 2Ranks	PC3-8500	DDR3-1066	7-7-7	1.5V
SP002GBLTU133T01(2)		PC3-10600	DDR3-1333	9-9-9	1.5V
SP002GBLTU160T01(2)		PC3-12800	DDR3-1600	11-11-11	1.5V
SP002GBLTU106W01(2)	2GB (256Mx64) 256Mx16 1Rank	PC3-8500	DDR3-1066	7-7-7	1.5V
SP002GBLTU133W01(2)		PC3-10600	DDR3-1333	9-9-9	1.5V
SP002GBLTU160W01(2)		PC3-12800	DDR3-1600	11-11-11	1.5V
SP004GBLTU106W01(2)	4GB (512Mx64) 256Mx16 2Ranks	PC3-8500	DDR3-1066	7-7-7	1.5V
SP004GBLTU133W01(2)		PC3-10600	DDR3-1333	9-9-9	1.5V
SP004GBLTU160W01(2)		PC3-12800	DDR3-1600	11-11-11	1.5V

Note:

1. This document supports all LTU Series DDR3 240Pin 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: SP001GBLTU133S02XX

DDR3 LTU Series Module Specification (Kit Package)

Part Number	Module Density & Configuration	Bandwidth	Data Rate	Timing	Operator
				(tCL-tRCD-tRP)	Voltage
SP002GBLTU106S21(2)	1GB x 2 Kit Package	PC3-8500	DDR3-1066	7-7-7	1.5V
SP002GBLTU133S21(2)		PC3-10600	DDR3-1333	9-9-9	1.5V
SP002GBLTU106T21(2)	1GB x 2 Kit Package	PC3-8500	DDR3-1066	7-7-7	1.5V
SP002GBLTU133T21(2)		PC3-10600	DDR3-1333	9-9-9	1.5V
SP002GBLTU160T21(2)		PC3-12800	DDR3-1600	9-9-9	1.5V
SP004GBLTU106T21(2)	2GB x 2 Kit Package	PC3-8500	DDR3-1066	7-7-7	1.5V
SP004GBLTU133T21(2)		PC3-10600	DDR3-1333	9-9-9	1.5V
SP004GBLTU160T21(2)		PC3-12800	DDR3-1600	9-9-9	1.5V
SP004GBLTU106S21(2)	2GB x 2 Kit Package	PC3-8500	DDR3-1066	7-7-7	1.5V
SP004GBLTU133S21(2)		PC3-10600	DDR3-1333	9-9-9	1.5V
SP004GBLTU160S21(2)		PC3-12800	DDR3-1600	9-9-9	1.5V
SP004GBLTU106V21(2)	2GB x 2 Kit Package	PC3-8500	DDR3-1066	7-7-7	1.5V
SP004GBLTU133V21(2)		PC3-10600	DDR3-1333	9-9-9	1.5V
SP004GBLTU160V21(2)		PC3-12800	DDR3-1600	11-11-11	1.5V
SP004GBLTU106W21(2)	2GB x 2 Kit Package	PC3-8500	DDR3-1066	7-7-7	1.5V
SP004GBLTU133W21(2)		PC3-10600	DDR3-1333	9-9-9	1.5V
SP004GBLTU160W21(2)		PC3-12800	DDR3-1600	11-11-11	1.5V
SP008GBLTU106W21(2)	4GB x 2 Kit Package	PC3-8500	DDR3-1066	7-7-7	1.5V
SP008GBLTU133W21(2)		PC3-10600	DDR3-1333	9-9-9	1.5V
SP008GBLTU160W21(2)		PC3-12800	DDR3-1600	11-11-11	1.5V
SP008GBLTU106V21(2)	4GB x 2 Kit Package	PC3-8500	DDR3-1066	7-7-7	1.5V
SP008GBLTU133V21(2)		PC3-10600	DDR3-1333	9-9-9	1.5V
SP008GBLTU160V21(2)		PC3-12800	DDR3-1600	11-11-11	1.5V
SP016GBLTU133N21(2)	8GB x 2 Kit Package	PC3-10600	DDR3-1333	9-9-9	1.5V
SP016GBLTU160N21(2)		PC3-12800	DDR3-1600	11-11-11	1.5V
SP003GBLTU106S31(2)	1GB x 3 Kit Package	PC3-8500	DDR3-1066	7-7-7	1.5V
SP003GBLTU133S31(2)		PC3-10600	DDR3-1333	9-9-9	1.5V
SP006GBLTU106S31(2)	2GB x 3 Kit Package	PC3-8500	DDR3-1066	7-7-7	1.5V
SP006GBLTU133S31(2)		PC3-10600	DDR3-1333	9-9-9	1.5V
SP006GBLTU160S31(2)		PC3-12800	DDR3-1600	9-9-9	1.5V
SP006GBLTU106V31(2)	2GB x 3 Kit Package	PC3-8500	DDR3-1066	7-7-7	1.5V
SP006GBLTU133V31(2)		PC3-10600	DDR3-1333	9-9-9	1.5V
SP006GBLTU160V31(2)		PC3-12800	DDR3-1600	11-11-11	1.5V
SP012GBLTU106V31(2)	4GB x 3 Kit Package	PC3-8500	DDR3-1066	7-7-7	1.5V
SP012GBLTU133V31(2)		PC3-10600	DDR3-1333	9-9-9	1.5V

DDR3L LTU series Module Specification (Single DIMM Package)

Part Number	Module Density & Configuration	Bandwidth	Data Rate	Timing	Operator Voltage
				(tCL-tRCD-tRP)	
SP001GLLTU106T01(2)	1GB (128Mx64) 128Mx16 1Rank	PC3L-8500	DDR3L-1066	7-7-7	1.35V
SP001GLLTU133T01(2)		PC3L-10600	DDR3L-1333	9-9-9	1.35V
SP001GLLTU160T01(2)		PC3L-12800	DDR3L-1600	11-11-11	1.35V
SP002GLLTU106T01(2)	2GB (256Mx64) 128Mx16 2Ranks	PC3L-8500	DDR3L-1066	7-7-7	1.35V
SP002GLLTU133T01(2)		PC3L-10600	DDR3L-1333	9-9-9	1.35V
SP002GLLTU160T01(2)		PC3L-12800	DDR3L-1600	11-11-11	1.35V
SP002GLLTU106W01(2)	2GB (256Mx64) 256Mx16 1Rank	PC3L-8500	DDR3L-1066	7-7-7	1.35V
SP002GLLTU133W01(2)		PC3L-10600	DDR3L-1333	9-9-9	1.35V
SP002GLLTU160W01(2)		PC3L-12800	DDR3L-1600	11-11-11	1.35V
SP004GLLTU106W01(2)	4GB (512Mx64) 256Mx16 2Ranks	PC3L-8500	DDR3L-1066	7-7-7	1.35V
SP004GLLTU133W01(2)		PC3L-10600	DDR3L-1333	9-9-9	1.35V
SP004GLLTU160W01(2)		PC3L-12800	DDR3L-1600	11-11-11	1.35V
SP002GLLTU133V01(2)	2GB (256Mx64)	PC3L-10600	DDR3L-1333	9-9-9	1.35V
SP002GLLTU160V01(2)	256Mx8 1Rank	PC3L-12800	DDR3L-1600	11-11-11	1.35V
SP004GLLTU133V01(2)	4GB (512Mx64)	PC3L-10600	DDR3L-1333	9-9-9	1.35V
SP004GLLTU160V01(2)	256Mx8 2Ranks	PC3L-12800	DDR3L-1600	11-11-11	1.35V
SP004GLLTU133N01(2)	4GB (512Mx64)	PC3L-10600	DDR3L-1333	9-9-9	1.35V
SP004GLLTU160N01(2)	512Mx8 1Rank	PC3L-12800	DDR3L-1600	11-11-11	1.35V
SP008GLLTU133N01(2)	8GB (1Gx64)	PC3L-10600	DDR3L-1333	9-9-9	1.35V
SP008GLLTU160N01(2)	512Mx8 2Ranks	PC3L-12800	DDR3L-1600	11-11-11	1.35V

Note:

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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: SP001GBLTU133S02XX

DDR3L LTU series Module Specification (Kit Package)

Part Number	Module Density & Configuration	Bandwidth	Data Rate	Timing	Operator Voltage
				(tCL-tRCD-tRP)	
SP002GLLTU106T21(2)	1GB x 2 Kit Package	PC3L-8500	DDR3L-1066	7-7-7	1.35V
SP002GLLTU133T21(2)		PC3L-10600	DDR3L-1333	9-9-9	1.35V
SP002GLLTU160T21(2)	128Mx16 1Rank	PC3L-12800	DDR3L-1600	11-11-11	1.35V
SP004GLLTU106T21(2)	2GB x 2 Kit Package	PC3L-8500	DDR3L-1066	7-7-7	1.35V
SP004GLLTU133T21(2)		PC3L-10600	DDR3L-1333	9-9-9	1.35V
SP004GLLTU160T21(2)	128Mx16 2Ranks	PC3L-12800	DDR3L-1600	11-11-11	1.35V
SP004GLLTU106W21(2)	2GB x 2 Kit Package	PC3L-8500	DDR3L-1066	7-7-7	1.35V
SP004GLLTU133W21(2)		PC3L-10600	DDR3L-1333	9-9-9	1.35V
SP004GLLTU160W21(2)	256Mx16 1Rank	PC3L-12800	DDR3L-1600	11-11-11	1.35V
SP008GLLTU106W21(2)	4GB x 2 Kit Package	PC3L-8500	DDR3L-1066	7-7-7	1.35V
SP008GLLTU133W21(2)		PC3L-10600	DDR3L-1333	9-9-9	1.35V
SP008GLLTU160W21(2)	256Mx16 2Ranks	PC3L-12800	DDR3L-1600	11-11-11	1.35V
SP004GLLTU133V21(2)	2GB x 2 Kit Package	PC3-10600	DDR3L-1333	9-9-9	1.35V
SP004GLLTU160V21(2)		PC3-12800	DDR3L-1600	11-11-11	1.35V
SP008GLLTU133V21(2)	4GB x 2 Kit Package	PC3-10600	DDR3L-1333	9-9-9	1.35V
SP008GLLTU160V21(2)		PC3-12800	DDR3L-1600	11-11-11	1.35V
SP008GLLTU133N21(2)	4GB x 2 Kit Package	PC3-10600	DDR3L-1333	9-9-9	1.35V
SP008GLLTU160N21(2)		PC3-12800	DDR3L-1600	11-11-11	1.35V
SP016GLLTU133N21(2)	8GB x 2 Kit Package	PC3-10600	DDR3L-1333	9-9-9	1.35V
SP016GLLTU160N21(2)		PC3-12800	DDR3L-1600	11-11-11	1.35V

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3. All part numbers end with a double-digit code is for customize use only.

Example: SP001GBLTU133S02XX

DDR3 LTE Series Module Specification (Single DIMM Package)

Part Number	Module Density & Configuration	Bandwidth	Data Rate	Timing (tCL-tRCD-tRP)	Operator Voltage
SP001GBLTE106S01	1GB (128Mx72)	PC3-8500	DDR3-1066	7-7-7	1.5V
SP001GBLTE133S01	128Mx8 1Rank	PC3-10600	DDR3-1333	9-9-9	1.5V
SP002GBLTE106S01	2GB (256Mx72)	PC3-8500	DDR3-1066	7-7-7	1.5V
SP002GBLTE133S01	128Mx8 2Ranks	PC3-10600	DDR3-1333	9-9-9	1.5V
SP002GBLTE106V01	2GB (256Mx72) 256Mx8 1Rank	PC3-8500	DDR3-1066	7-7-7	1.5V
SP002GBLTE133V01		PC3-10600	DDR3-1333	9-9-9	1.5V
SP002GBLTE160V01		PC3-12800	DDR3-1600	11-11-11	1.5V
SP004GBLTE106V01	4GB (512Mx72) 256Mx8 2Ranks	PC3-8500	DDR3-1066	7-7-7	1.5V
SP004GBLTE133V01		PC3-10600	DDR3-1333	9-9-9	1.5V
SP004GBLTE160V01		PC3-12800	DDR3-1600	11-11-11	1.5V
SP004GBLTE106N01	4GB (512Mx72) 512Mx8 1Rank	PC3-8500	DDR3-1066	7-7-7	1.5V
SP004GBLTE133N01		PC3-10600	DDR3-1333	9-9-9	1.5V
SP004GBLTE160N01		PC3-12800	DDR3-1600	11-11-11	1.5V
SP008GBLTE106N01	8GB (1024Mx72) 512Mx8 2Ranks	PC3-8500	DDR3-1066	7-7-7	1.5V
SP008GBLTE133N01		PC3-10600	DDR3-1333	9-9-9	1.5V
SP008GBLTE160N01		PC3-12800	DDR3-1600	11-11-11	1.5V

DDR3L LTE Series Module Specification (Single DIMM Package)

Part Number	Module Density & Configuration	Bandwidth	Data Rate	Timing (tCL-tRCD-tRP)	Operator Voltage
SP004GLLTE160N01	4GB (512Mx72) 512Mx8 1Rank	PC3L-12800	DDR3L-1600	11-11-11	1.35V
SP008GLLTE160N01	8GB (1024Mx72) 512Mx8 2Ranks	PC3L-12800	DDR3L-1600	11-11-11	1.35V

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Example: SP001GBLTU133S02XX