

1.35V DDRIII SDRAM 1866/1600/1333/1066 204-PIN SO_DIMM 4GB 256Mx8

DESCRIPTION:

This document describes Aplus 512M x 64-bit 4GB DDR3 SDRAM (Synchronous DRAM) Dual In-Line Memory Module. The components on this module include sixteen 256M x 8-bit DDR3 SDRAMs in FBGA packages and a 2048-bit serial EEPROM. Those components were mounted on a 204-pin printed circuit board. This 204-pin SO_DIMM is used to be mounted into 204-pin edge connector sockets and data I/O transactions could be apply on both edges of DQS. The electrical and mechanical specifications are as follows:

Features

DDR3L functionality and operations supported as defined in the component data sheet
204-pin, small outline dual in-line memory module (SODIMM)

Fast data transfer rates: PC3-14900, PC3-12800, PC3-10600, PC3-8500

$V_{DD} = 1.35V$ (1.283V–1.45V)

$V_{DD} = 1.5V$ (1.425–1.575V)

Backward compatible to $V_{DD} = 1.5V \pm 0.075V$

$V_{DDSPD} = 3.0\text{--}3.6V$

Nominal and dynamic on-die termination (ODT) for data, strobe, and mask signals

Dual rank

Fixed burst chop (BC) of 4 and burst length (BL) of 8 via the mode register set (MRS)

On-board I2C serial presence-detect (SPD) EEPROM

Selectable BC4 or BL8 on-the-fly (OTF)

Gold edge contacts

Halogen-free

Fly-by topology

Terminated control, command, and address bus

Options

Operating temperature1

– Commercial ($0^{\circ}C \leq T_A \leq +70^{\circ}C$)

Frequency/CAS latency

– 1.07ns @ CL = 13 (DDR3-1866)

– 1.25ns @ CL = 11 (DDR3-1600)

– 1.5ns @ CL = 9 (DDR3-1333)

– 1.87ns @ CL = 7 (DDR3-1066)

Industry Nomenclature	Data Rate (MT/s)						tRCD	tRP	tRC	Module Bandwidth	Memory Clock/ Data Rate	Clock Cycles (CL-tRC D-tRP)
	CL=13	CL=11	CL=10	CL=9	CL=8	CL=7	(ns)	(ns)	(ns)			
PC3-14900	1866	1600	1333	1333	1066	1066	13.125	13.125	47.125	14.9GB/s	1.07ns/1866 MT/s	13-13-13
PC3-12800	–	1600	1333	1333	1066	1066	13.125	13.125	48.125	12.8GB/s	1.25ns/1600 MT/s	11-11-11
PC3-10600	–	–	1333	1333	1066	1066	13.125	13.125	49.125	10.6GB/s	1.5ns/1333 MT/s	9-9-9
PC3-8500	–	–	–	–	–	1066	13.125	13.125	50.625	8.5GB/s	1.87ns/1066 MT/s	7-7-7

The drawing shows the front and back views of a rectangular PCB. The front view (top) features a 2x4 grid of components U1 through U10. The back view (bottom) features a 2x4 grid of components U11 through U20, with U14 being a smaller component. The PCB has a central horizontal slot and a vertical slot. Dimensions are provided in inches and millimeters (in parentheses). The front view dimensions include a total width of 67.75 (2.667) inches, a total height of 30.15 (1.187) inches, and a central slot width of 20.0 (0.787) inches. The back view dimensions include a total width of 63.6 (2.504) inches, a total height of 39.0 (1.535) inches, and a central slot width of 24.8 (0.976) inches. The drawing also shows a 45° chamfer on the corners and a 3.8 (0.150) MAX dimension for the central slot.

- Notes: 1. All dimensions are in millimeters (inches); MAX/MIN or typical (TYP) where noted.
2. The dimensional diagram is for reference only.