

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 eight 256M x 16-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:

DDR3 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: PC3-12800, PC3-10600, PC3-8500

4GB (512 Meg x 64)

$V_{DD} = 1.35V$ (1.283-1.45V)

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

$V_{DDSPD} = 3.0-3.6V$

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

Dual rank

Serial presence-detect (SPD) EEPROM

8 internal device banks

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

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 ($0^{\circ}C \leq TA \leq +70^{\circ}C$)

Frequency/CAS latency

– 1.25ns @ CL = 11 (DDR3-1600)

– 1.5ns @ CL = 9 (DDR3-1333)

– 1.87ns @ CL = 7 (DDR3-1066)

PERFORMANCE:

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

