

Data Loading <sup>2</sup>	Maximum DRAM Speed
<ol style="list-style-type: none"> <li><i>SO-DIMM1 connects to the A copy of the address/control group signals and SO-DIMM2 connects to the B copy of the address/control group signals. See the AMD Athlon™ 64 Processor Motherboard Design Guide, order# 24665, and Piccolo Dual Address/Command Orcad Schematics for details on this connection scheme and other motherboard design rules and recommendations for optimizing DRAM performance.</i></li> <li><i>Data loading is calculated by summing the electrical loads per bit on the data bus presented by all installed SO-DIMMs. A single rank SO-DIMM uses one chip select and presents one electrical load per data bit. A double rank SO-DIMM uses two chip selects and presents two electrical loads per data bit.</i></li> </ol>	

### 4.1.3.3 939-pin Lidded Micro PGA Package

**Table 43. Unbuffered DIMM Support For 939-pin Lidded Micro PGA Package**

Data Bus	Chip Selects				Maximum DRAM Speed	
	MEMCS_1L_L*	MEMCS_1H_L*	MEMCS_2L_L*	MEMCS_2H_L*	1T	2T
64-bits	Single rank	N/A	Empty	N/A	DDR400	DDR400
	Double rank	N/A	Empty	N/A	DDR400	DDR400
	Empty <sup>1</sup>	N/A	Single rank <sup>1</sup>	N/A	DDR333	DDR333
	Empty	N/A	Double rank	N/A	DDR400	DDR400
	Single rank	N/A	Single rank	N/A	DDR333	DDR400
	Single rank	N/A	Double rank	N/A	DDR200	DDR400
	Double rank	N/A	Single rank	N/A	DDR200	DDR400
	Double rank	N/A	Double rank	N/A	DDR200	DDR333
128-bits	Single rank	Single rank	Empty	Empty	DDR400	DDR400
	Double rank	Double rank	Empty	Empty	DDR400	DDR400
	Empty <sup>1</sup>	Empty <sup>1</sup>	Single rank <sup>1</sup>	Single rank <sup>1</sup>	DDR333	DDR333
	Empty	Empty	Double rank	Double rank	DDR400	DDR400
	Single rank	Single rank	Single rank	Single rank	DDR333	DDR400
	Single rank	Single rank	Double rank	Double rank	DDR200	DDR400
	Double rank	Double rank	Single rank	Single rank	DDR200	DDR400
	Double rank	Double rank	Double rank	Double rank	DDR200	DDR333

**Table 43. Unbuffered DIMM Support For 939-pin Lidded Micro PGA Package**

Data Bus	Chip Selects				Maximum DRAM Speed	
	MEMCS_1L_L*	MEMCS_1H_L*	MEMCS_2L_L*	MEMCS_2H_L*	1T	2T
1. Refer to the AMD Athlon™ 64 939 Processor Motherboard Design Guide, order# 30474, for details on these loading conditions.						

**4.1.3.4 940-pin Lidded Micro PGA Package****Table 44. Registered DIMM Support for 940-pin Lidded Micro PGA Package**

Supported DIMM Configurations	DDR200	DDR266	DDR333	DDR400 <sup>1</sup>
64-bit plus ECC	4	4	4	2
128-bit plus ECC	8	8	8	4
1. See Table 45 for DDR400 speed/loading specifications.				

**Table 45. DDR400 Registered DIMM Support for 940-pin Lidded Micro PGA Package**

Data Bus	Chip Selects				Maximum DRAM Speed
	H*_DIMM0 H*_MEMCS_L[1:0]	H*_DIMM1 H*_MEMCS_L[1:0]	H*_DIMM2 H*_MEMCS_L[3:2]	H*_DIMM3 H*_MEMCS_L[3:2]	
64-bits plus ECC	Single rank	N/A	Empty	N/A	DDR400
	Double rank	N/A	Empty	N/A	DDR400
	Empty	N/A	Single rank	N/A	DDR400
	Empty	N/A	Double rank	N/A	DDR400
	Single rank	N/A	Single rank	N/A	DDR400
	Single rank	N/A	Double rank	N/A	DDR400
	Double rank	N/A	Single rank	N/A	DDR400
	Double rank	N/A	Double rank	N/A	DDR333
128-bits plus ECC	Single rank	Single rank	Empty	Empty	DDR400
	Double rank	Double rank	Empty	Empty	DDR400
	Empty	Empty	Single rank	Single rank	DDR400
	Empty	Empty	Double rank	Double rank	DDR400
	Single rank	Single rank	Single rank	Single rank	DDR400
	Single rank	Single rank	Double rank	Double rank	DDR400
	Double rank	Double rank	Single rank	Single rank	DDR400
	Double rank	Double rank	Double rank	Double rank	DDR333