



3.3V Bus Switches for PC100™/PC133™ DIMM Switching

by Refugio Jones August 18, 1999

Highlights

In high-end PC and server applications, the Pentium II™ processor memory bus runs at bus speeds of 100 or 133 MHz. Here, bus switches are used to switch 100/133 MHz SDRAM modules in densities of 128 MBytes and higher.

Pericom's 3.3V DIMM bus switch series is designed with near zero delay, low ON Resistance (five ohms), low-capacitance, and ultra-low quiescent power.

For reliability, the unused module data pins should be connected to ground. Figure 1 shows the application of Pericom's PI3B16226 bus switches in a Intel Pentium II memory system with bus speeds of 133 MHz and 133 MHz SDRAM DIMMs.

To prevent overloading, a bus switch is required where more than three SDRAM DIMMs are connected to the bus. The block diagram shows that the DIMM modules are connected to the B ports of the bus switch.

The PI3B16226 (see Figure 2), has weak pull-down resistors on B ports connected to ground. The B port gets enabled when the switch is disabled. This ensures non-floating connections and reliable DIMM operation.

Furthermore, PC133 applications require low ON Capacitance to reduce bus loading under 133 MHz tight timing requirements. The PI3B16226 provides 9pF of ON Capacitance.

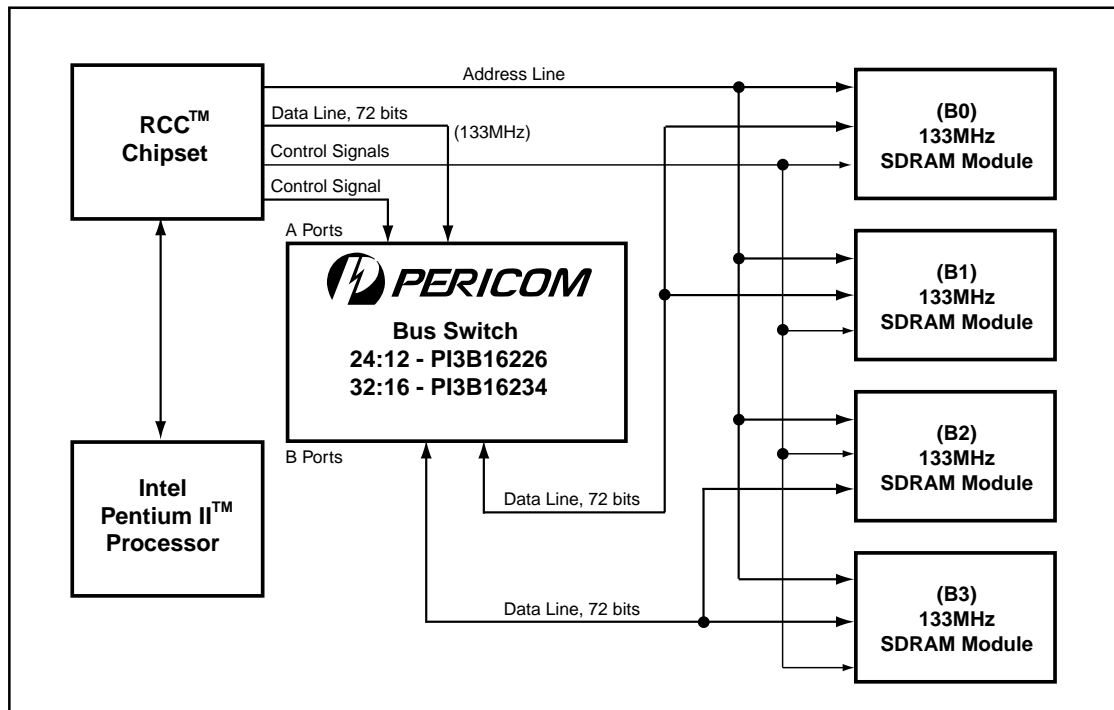


Figure 1. Using Pericom's 3.3V Bus Switch in DIMM Switching

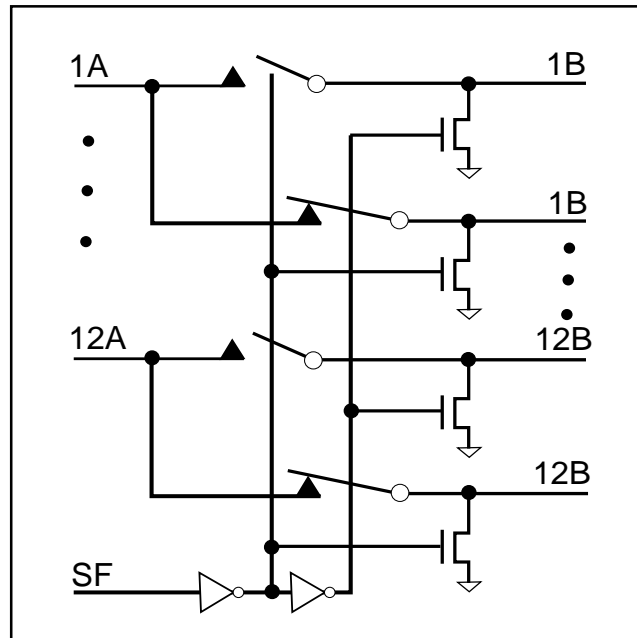


Figure 2. PI3B16226 Block Diagram

Pericom has recently introduced several bus switch products for DIMM switching in computer, networking and multi-media applications with configuration up to 32 bits. It should be noted that ultra-

low quiescent power (0.2μA typically) makes these products ideally suited for notebook application. A detail of these products and their compatibility to standard chipsets is shown in Figure 3.

Pericom BusSwitch	Configuration	Generic Chipset	Pin Count	Packages
PI3B16226	24:12 Mux/Demux	PC133 & RCC	40	BQSOP
PI3B16234	32:16 Mux/Demux	PC133 & RCC	56	TSSOP
PI5C16292	24:12 Mux/Demux	PC100™ & 440BX™ / 440GX™	56	TSSOP
PI5C16225	24:12 Mux/Demux	PC133 & RCC	56	TSSOP
PI5C16226	24:12 Mux/Demux	PC133 & RCC	40	BQSOP
PI5C16234	32:16 Mux/Demux	PC133 & RCC	56	TSSOP

Figure 3. Pericom's DIMM Switching Bus Switch Selection Guide