

Using Pericom's PI5C16292 Bus Switch for Memory Switching

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Highlights

In high-end PC and server applications, the Pentium II™ processor runs at bus speeds of 100 MHz and beyond. These applications require bus switches to manage 100 MHz SDRAM modules with densities of 128MBs and higher.

Pericom's PI5C16292 and PI5C162292 are 12-bit-to-24-bit Mux/Demux bus switches designed with near zero delay, low R_{ON} (On-Resistance) of five ohms and ultra-low quiescent power. In addition, to reduce noise resulting from reflection, the PI5C162292 device has a built-in 25-ohm series resistor that eliminates the external series termination.

For reliability, the unused module data pins should be connected to ground. Figure 1 shows the application of Pericom's PI5C16292/

PI5C162292 bus switch in a Intel Pentium II system with bus speeds of 100 MHz and 100 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 first two module's data pins are connected directly whereas the other two are connected through the bus switch and controlled by the core logic.

The PI5C16292, as shown in Figure 2, has an internal 500-ohm resistor on the A2 port that is connected to ground. This A2 port connects with the unused module data pins to keep them from floating. Termination of the unused DIMM module ensures its reliability.

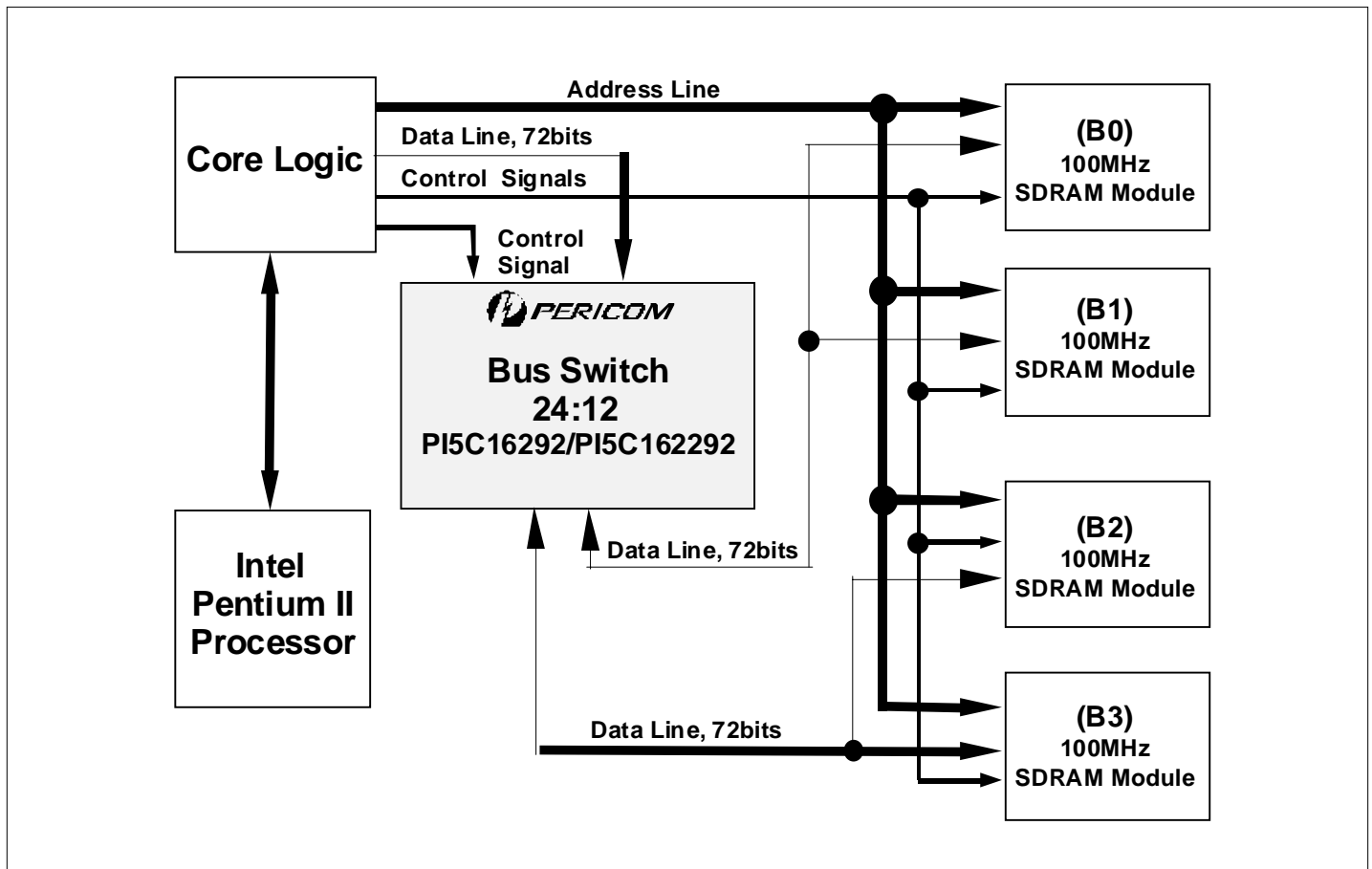


Figure 1. PI5C16292 used in Memory Module Switching

The PI5C16292 has an internal 500-ohm resistor connected to ground on the A2 port. Figure 3 shows that you can use the PI5C16212 in the same application but it needs external resistor packs to handle the floating pins of the unused module. In comparison, the PI5C16292 is a more cost-effective solution for memory module switching applications.

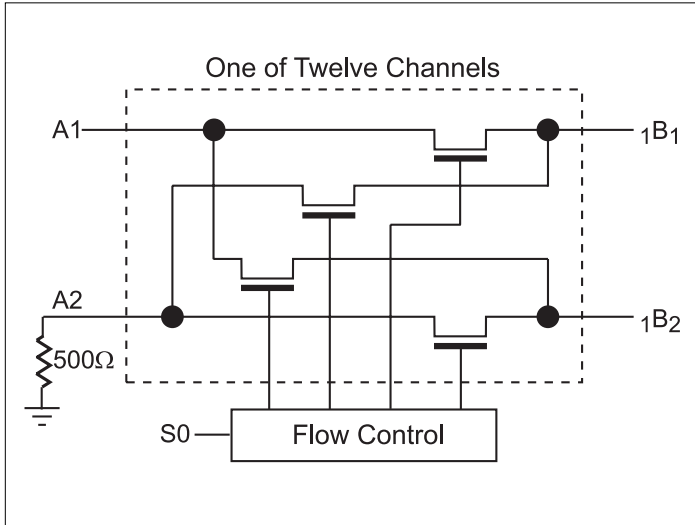


Figure 2. PI5C16292 Block Diagram

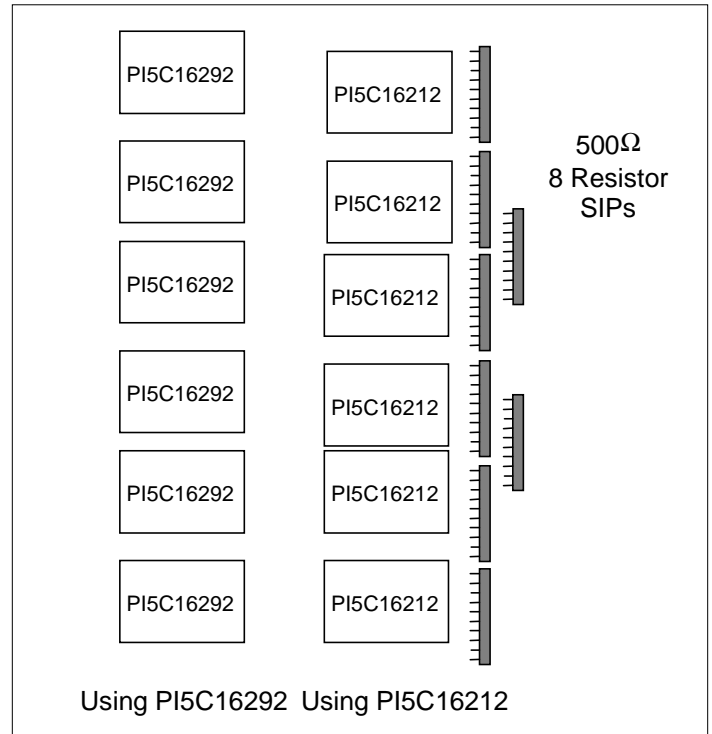


Figure 3. PI5C16292 vs. PI5C16212

Pericom has recently introduced several bus switch products for the computer, networking and multi-media markets 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. For detail information of the products, refer to the Pericom's web site at www.pericom.com.