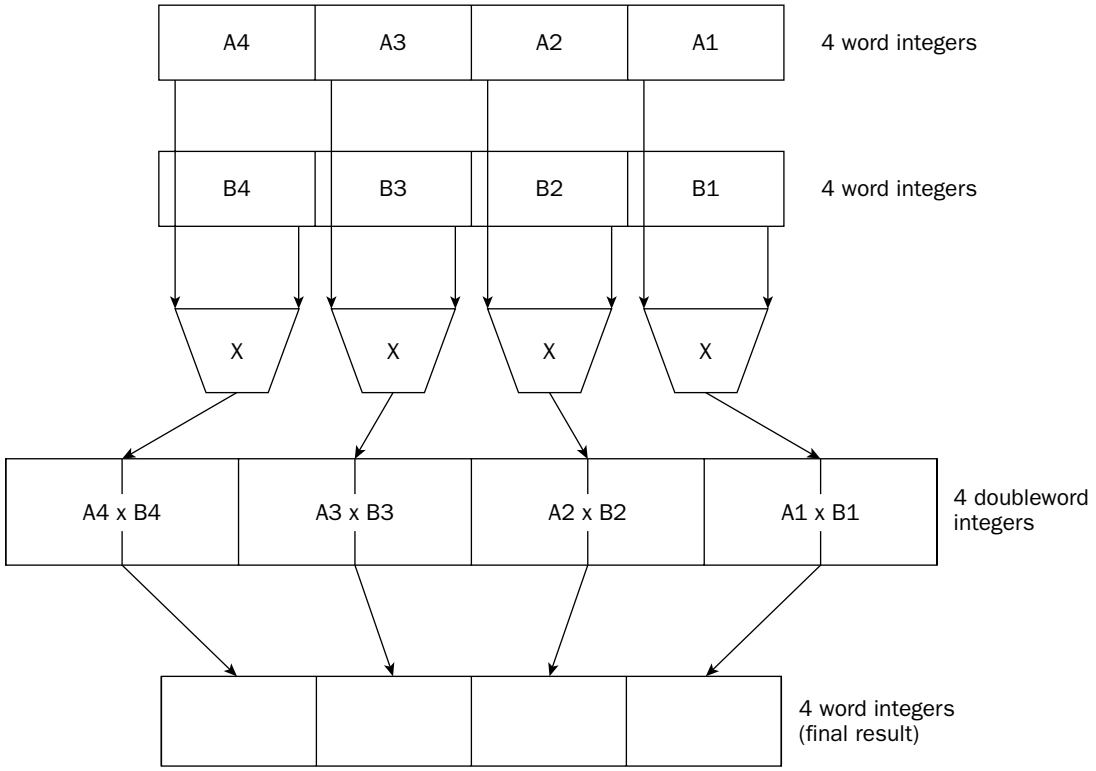

Figure 17-3

The low 16 bits of the results can then be moved to an appropriate memory location, and the two input registers reloaded with the original operands. Next, the `PMULH` instruction is used, which multiplies the packed word integer values and places the high 16 bits of the result in the destination register. Now you have both the low- and high-order bits for the complete result of the multiplication.

The `PMULL` and `PMULH` instructions have versions for both signed (`PMULLW` and `PMULHW`) and unsigned (`PMULLUW` and `PMULHUW`) integer values.

One additional instruction in the MMX multiplication family is the `PMADDWD` instruction. The `PMADDWD` instruction is a special-purpose instruction. It performs a multiplication of four signed word integer values in the source operand with the four signed word integer values in the destination operand. This produces four signed doubleword integer values. The adjacent doubleword integer values are then added together to produce two doubleword integer result values, as demonstrated in Figure 17-4.