

ASTBRACK

FLEXIBLE MICROPROCESSOR REGISTER FILE

Architectures and methods for viewing data in multiple formats within a register file. Various disclosed embodiments allow a plurality of consecutive registers within one register file to appear to be temporarily transposed by one instruction, such that each transposed register contains one byte or word from multiple consecutive registers. A program can arbitrarily reorganize the bytes within a register by swapping the value stored in any byte within the register with the value stored in any other byte within the same register. Indirect register access is also provided, without additional scoreboarding hardware, as an apparent move from one register to another. The functionality of a hardware data FIFO at the I/O is also provided, without the power consumption of register-to-register transfers. However, the size of the FTFO can be changed under program control.

Figure 4

