REGISTER DESCRIPTION

The processor consists of 16bit program counter and 8 general purpose registers of 16 bit each in the register file. The 8x16 register file has two read ports and one write ports. The read port takes 3-bit address inputs, RS1 and RS2, each specifying one of the 8 GPRs as source operands. They read the 16 bit register values onto read data outputs RD1 and RD2. The write port takes a 3 bit address input Rw; a 16 bit input, WD. The output ports of the register file serve as inputs A and B of the ALU if selected by the two multiplexers. Register R0 always contains the value 0. By convention, register R7 is used to store the stack pointer. Another Register, the Link Register, is used to store the return address of the caller function. However, it is not a part of the General Purpose register file. The Program Counter (PC) is a 16bit register wherein the output of the PC points to the current instruction and the input of the PC indicates the address of the next instruction.