**16-bit ALU\_UVM**

1. **ALU\_FUN Table**

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| --- | --- | --- |
| ALU\_OUT | Operation | ALU\_FUN |
|  | Arithmatic : **Addition** | 0000 |
|  | Arithmatic : **Subtraction** | 0001 |
|  | Arithmatic : **Multiplication** | 0010 |
|  | Arithmatic : **Division** | 0011 |
|  | Logic : **AND** | 0100 |
|  | Logic : **OR** | 0101 |
|  | Logic : **NAND** | 0110 |
|  | Logic : **NOR** | 0111 |
| Equal to 0 | **NOP** | 1000 |
| Equal to 1 | CMP: **A = B** | 1001 |
| Equal to 2 | CMP: **A > B** | 1010 |
| Equal to 3 | CMP: **A < B** | 1011 |
|  | SHIFT: **A >> 1** | 1100 |
|  | SHIFT: **A << 1** | 1101 |
|  | SHIFT: **B >> 1** | 1110 |
|  | SHIFT: **B << 1** | 1111 |

1. **supported tests**

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| **DISCRIPTION** | **TESTS** |
| Add operation test | ALU\_ADD\_test |
| Sub operation test | ALU\_SUB\_test |
| Multiplication operation test | ALU\_MUL\_test |
| Division operation test | ALU\_DIV\_test |
| And operation test | ALU\_AND\_test |
| Or operation test | ALU\_OR\_test |
| Nand operation test | ALU\_NAND\_test |
| Nor operation test | ALU\_NOR\_test |
| No operation | ALU\_NOP\_test |
| Compare “equal” operation test | ALU\_CMP\_EQ\_test |
| Compare” less than” operation test | ALU\_CMP\_LS\_test |
| Compare “greater than” operation test | ALU\_CMP\_GR\_test |
| Shift left for input A test | ALU\_A\_SF\_L\_test |
| Shift right for input A test | ALU\_A\_SF\_R\_test |
| Shift left for input B test | ALU\_B\_SF\_L\_test |
| Shift right for input B test | ALU\_B\_SF\_R\_test |