Test Bench Explanations:

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| 00000000 | Print contents of R0; **Printout is :“ 0”**; R0 is initialized to ‘0’. |
| 00001000 | Print contents of R1; **Printout is: “ 0”**; R1 is initialized to ‘0’. |
| 00010000 | Print contents of R2; **Printout is: “ 0”**; R2 is initialized to ‘0’. |
| 00011000 | Print contents of R3; **Printout is: “ 0”**; R3 is initialized to ‘0’. |
| 11000001 | Load immediate value of ‘1’ into R0. |
| 00000000 | Print contents of R0; **Printout is: “ 1”**; |
| 11010111 | Load immediate value of ‘7’ into R1. |
| 00001000 | Print contents of R1; **Printout is: “ 7”**; |
| 11101000 | Load immediate value of ‘-8’ into R2. |
| 00010000 | Print contents of R2; **Printout is: “ -8”**; |
| 01110001 | R3 = R0 + R1; |
| 00011000 | Print contents of R3; **Printout is: “ 8”**; |
| 01111111 | R3 = R3 + R3; |
| 00011000 | Print contents of R3; **Printout is: “ 16”**; |
| 01111110 | R3 = R3 + R2; |
| 00011000 | Print contents of R3; **Printout is: “ 8”**; |
| 01111110 | R3 = R3 + R2; |
| 01111110 | R3 = R3 + R2; |
| 00011000 | Print contents of R3; **Printout is: “ -8”**; |
| 10110100 | R3 = R1 – R0; |
| 00011000 | Print contents of R3; **Printout is: “ 6”**; |
| 11000111 | Load immediate value of ‘7’ into R0. |
| 10111100 | R3 = R3 – R0; |
| 00011000 | Print contents of R3; **Printout is: “ -1”**; |
| 00011001 | Print contents of R3; **Printout is: “ -1”**; Bottom three bits are “don’t care.” |
| 00011010 | Print contents of R3; **Printout is: “ -1”**; Bottom three bits are “don’t care.” |
| 00011100 | Print contents of R3; **Printout is: “ -1”**; Bottom three bits are “don’t care.” |
| 00101100 | Skip 1 instruction if R3 = R0; They are not equal, so no instruction is skipped. |
| 00000000 | Print contents of R0; **Printout is :“ 7”**. |
| 00111100 | Skip 2 instructions if R3 = R0; They are not equal, so no instruction is skipped. |
| 11000001 | Load immediate value of ‘1’ into R0. |
| 11110001 | Load immediate value of ‘1’ into R3. |
| 00000000 | Print contents of R0; **Printout is :“ 1”**. |
| 00011000 | Print contents of R3; **Printout is :“ 1”**. |
| 00101100 | Skip 1 instruction if R3 = R0; They are equal, so next instruction is skipped. |
| 00000000 | Print contents of R0; Nothing will be printed since it is skipped. |
| 00101100 | Skip 1 instruction if R3 = R0; They are equal, so next instruction is skipped. |
| 01111110 | R3 = R3 + R2; This instruction will be skipped. |
| 00011000 | Print contents of R3; **Printout is :“ 1”**. R3’s value was not changed because of the skip. |
| 00101100 | Skip 1 instruction if R3 = R0; They are equal, so next instruction is skipped. |
| 10111110 | R3 = R3 - R2; This instruction will be skipped. |
| 00011000 | Print contents of R3; **Printout is :“ 1”**. R3’s value was not changed because of the skip. |
| 00101100 | Skip 1 instruction if R3 = R0; They are equal, so next instruction is skipped. |
| 00101100 | Skip 1 instruction if R3 = R0; This instruction will be skipped. |
| 11011111 | Load immediate value of ‘-1’ into R1. |
| 00001000 | Print contents of R1; **Printout is :“ -1”**. Last skip instruction was skipped. |
| 00111100 | Skip 2 instructions if R3 = R0; They are equal, so next 2 instructions are skipped. |
| 00000000 | Print contents of R0; Nothing will be printed since it is skipped. |
| 01111110 | R3 = R3 + R2; This instruction will be skipped. |
| 00011000 | Print contents of R3; **Printout is :“ 1”**. R3’s value was not changed because of the skip. |
| 00111100 | Skip 2 instructions if R3 = R0; They are equal, so next instruction is skipped. |
| 10111110 | R3 = R3 - R2; This instruction will be skipped. |
| 00111100 | Skip 2 instructions if R3 = R0; This instruction will be skipped. |
| 00011000 | Print contents of R3; **Printout is :“ 1”**. R3’s value was not changed because of the skip. |