|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Coding | 2222 3210 | 1111 9876 | 1111 5432 | 1100 1098 | 0000 7654 | 0000 3210 | Affected Flags |
| ADD Wb, Ws, Wd | 0100 | 0www | wBqq | qddd | dppp | ssss | N, OV, Z, C |
| SUB Wb, Ws, Wd | 0101 | 0www | wBqq | qddd | dppp | ssss | N, OV, Z, C |
| AND Wb, Ws, Wd | 0110 | 0www | wBqq | qddd | dppp | ssss | N, − , Z, − |
| IOR Wb, Ws, Wd | 0111 | 0www | wBqq | qddd | dppp | ssss | N, − , Z, − |
| MOV f, Wnd | 1000 | 0fff | ffff | ffff | ffff | dddd | none |
| MOV Wns, f | 1000 | 1fff | ffff | ffff | ffff | ssss | none |
| BRA expr | 0011 | 0111 | nnnn | nnnn | nnnn | nnnn | none |
| BRA C, expr | 0011 | 0001 | nnnn | nnnn | nnnn | nnnn | none |
| BRA OV, expr | 0011 | 0000 | nnnn | nnnn | nnnn | nnnn | none |
| BRA Z, expr | 0011 | 0010 | nnnn | nnnn | nnnn | nnnn | none |
| BRA N, expr | 0011 | 0011 | nnnn | nnnn | nnnn | nnnn | none |
| LSR Wb, Wns, Wnd | 1101 | 1110 | 0www | wddd | d000 | ssss | N, − , Z, − |
| NEG Ws, Wd | 1110 | 1010 | 0Bqq | qddd | dppp | ssss | N, OV, Z, C |
| BTG Ws, #bit4 | 1010 | 0010 | bbbb | 0B00 | 0ppp | ssss | none |
| SUBB Wb, #lit5, Wd | 0101 | 1www | wBqq | qddd | d11k | kkkk | N, OV, Z, C |

Balan Adelin-Cristian CEN3.1A - Project #5

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Coding | OPCODE | N\_EN | OV\_EN | Z\_EN | C\_EN | ALUOP | MemWr | Mem2Reg | RegWr | Branch | RegDest | RegBase |
| ADD Wb, Ws, Wd | 01000 | 1 | 1 | 1 | 1 | 000 | 0 | 0 | 1 | 0 | 1 | 1 |
| SUB Wb, Ws, Wd | 01010 | 1 | 1 | 1 | 1 | 001 | 0 | 0 | 1 | 0 | 1 | 1 |
| AND Wb, Ws, Wd | 01100 | 1 | 0 | 1 | 0 | 010 | 0 | 0 | 1 | 0 | 1 | 1 |
| IOR Wb, Ws, Wd | 01110 | 1 | 0 | 1 | 0 | 011 | 0 | 0 | 1 | 0 | 1 | 1 |
| MOV f, Wnd | 10000 | 0 | 0 | 0 | 0 | - | 0 | 1 | 1 | 0 | 0 | 1 |
| MOV Wns, f | 10001 | 0 | 0 | 0 | 0 | - | 1 | 0 | 0 | 0 | 1 | 1 |
| BRA expr | 00110 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 1 | 1 | 1 |
| BRA C, expr | 00110 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 1 | 1 | 1 |
| BRA OV, expr | 00110 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 1 | 1 | 1 |
| BRA Z, expr | 00110 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 1 | 1 | 1 |
| BRA N, expr | 00110 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 1 | 1 | 1 |
| LSR Wb, Wns, Wnd | 11011 | 1 | 0 | 1 | 0 | 101 | 0 | 0 | 1 | 0 | 1 | 0 |
| NEG Ws, Wd | 11101 | 1 | 1 | 1 | 1 | 100 | 0 | 0 | 1 | 0 | 1 | 1 |
| BTG Ws, #bit4 | 10100 | 0 | 0 | 0 | 0 | 110 | 0 | 0 | 0 | 0 | 1 | 1 |
| SUBB Wb, #lit5, Wd | 01011 | 1 | 1 | 1 | 1 | 111 | 0 | 0 | 1 | 0 | 1 | 1 |