**Table 1 truth table COMPLETE**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S2 | S1 | S0 | OP1 | OP2 | CY\_IN |
| 0 | 0 | 0 | A | B | 0 |
| 0 | 0 | 1 | A | B | 1 |
| 0 | 1 | 0 | A | 0 | 0 |
| 0 | 1 | 1 | A | 0 | 1 |
| 1 | 0 | 0 | A | B’ | 0 |
| 1 | 0 | 1 | A | B’ | 1 |
| 1 | 1 | 0 | A’ | 0 | 0 |
| 1 | 1 | 1 | A’ | 0 | 1 |

**conclusion: S0 is a carry and simplify the truth table**

|  |  |  |  |
| --- | --- | --- | --- |
| s2 | s1 | op1 | op2 |
| 0 | 0 | A | B |
| 0 | 1 | A | 0 |
| 1 | 0 | A | B’ |
| 1 | 1 | A’ | 0 |

**Table 5: Sequence of micro-operations to simulate COMPLETE**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S3S2S1S0 | A<-op1 | B<-op2 | C | v,z,n,cy | S16 | A16 | B16 | C16 | St16 |
| 1101 | 1010 | 0011 | 1000 | 0010 | D | A | 3 | 8 | 2 |
| 1110 | 0110 | XXXX | 1100 | 0010 | E | 6 | 3 | C | 2 |
| 0000 | 0011 | 0101 | 1000 | 1010 | 0 | 3 | 5 | 8 | A |
| 0011 | 1100 | XXXX | 1101 | 0010 | 3 | C | 5 | D | 2 |
| 1000 | XXXX | XXXX | 0000 | 0100 | C | 3 | 5 | 6 | 0 |
| 0110 | 1010 | XXXX | 0101 | 0000 | 6 | A | 5 | 5 | 0 |
| 1000 | XXXX | XXXX | 0000 | 0100 | 8 | A | 5 | 0 | 4 |
| 0101 | 0101 | 0011 | 0010 | 0001 | 5 | 5 | 3 | 2 | 1 |
| 0010 | 1110 | XXXX | 1110 | 0010 | 2 | E | 3 | E | 2 |
| 0111 | 0110 | XXXX | 1010 | 0010 | 7 | 6 | 3 | A | 2 |
| 1010 | 0101 | 0011 | 0001 | 0000 | A | 5 | 3 | 1 | 0 |
| 0001 | 0001 | 0010 | 0100 | 0000 | F | D | 2 | E | 0 |
| 0100 | 0110 | 0101 | 0000 | 0101 | 4 | 6 | 5 | 0 | 5 |
| 1001 | XXXX | XXXX | 1111 | 0010 | 9 | F | 5 | F | 2 |
| 1011 | 1100 | 1010 | 1110 | 0010 | B | C | A | E | 2 |