|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Op | Rs | Rt | Rd | Imm |  |
| Lw | 0(R00) | S[0](R03) |  | 0(Imm） | Load s[0] to R3 |
| Lw | 0(R00) | S[1](R04) |  | 1(Imm) | Load s[1] to R4 |
| Add | 0(R00) | 0(R00) | Temp1(R05) |  | Clear R05 |
| Add | 0(R00) | 0(R00) | Temp1(R06) |  | Clear R06 |
| Addi | 0(R00) | Temp1(R05) |  | Din(63 downto 48) |  |
| Shl | Temp1(R05) | Temp1(R05) |  | 16 | Load Din(63 downto 48) |
| Addi | 0(R00) | Temp2(R06) |  | Din(47 downto 32) |  |
| Shl | Temp2(R06) | Temp2(R06) |  | 16 |  |
| Shr | Temp2(R06) | Temp2(R06) |  | 16 | Load Din(47 downto 32) |
| Add | Temp1(R05) | Temp2(R06) | A(R01) |  | Load A=Din(63 downto 32) |
| Addi | 0(R00) | Temp1(R05) |  | Din(31 downto 16) |  |
| Shl | Temp1(R05) | Temp1(R05) |  | 16 | Load Din(31 downto 16) |
| Addi | 0(R00) | Temp2(R06) |  | Din(15 downto 0) |  |
| Shl | Temp2(R06) | Temp2(R06) |  | 16 |  |
| Shr | Temp2(R06) | Temp2(R06) |  | 16 | Load Din(15 downto 0) |
| Add | Temp1(R05) | Temp2(R06) | B(R02) |  | Load B |
| Add | 0(R00) | 0(R00) | I(R05) |  | Initialize I |
| Addi | 0(R00) | 24(R10) |  | 24 |  |
| Beq | I(R05) | 24(R10) |  | 28 | 丙 |
| Addi | I(R05) | I(R05) |  | 2 | I=I+2 |
| Lw | I(R05) | S[2\*i](R03) |  | 0 | Load s[2\*i] |
| Lw | I(R05) | S[2\*i+1](R04) |  | 1 | Load s[2\*i+1] |
| Sub | B(R02) | S[2\*i+1](R04) | B(R02) |  | B=xxx-s[2\*i+1] |
| Andi | A(R01) | Rotator(R07) |  | 0000…11111 | A(4 downto0) |
| Beq | Rotator(R07) | 0(R00) |  | 5 | 甲 |
| Shr | B(R02) | Temp\_right(R08) |  | 1 |  |
| Shl | B(R02) | Temp\_left(R09) |  | 31 |  |
| Add | Temp\_left(R08) | Temp\_right(R09) | B(R02) |  | Round right rotate B |
| Subi | Rotator(R07) | Rotator(R07) |  | 1 |  |
| Jmp |  |  |  | 甲 | Rotate loop1 back |
| And | A(R01) | B(R02) | C(R06) |  |  |
| Nor | C(R06) | 0(R00) | C(R06) |  |  |
| Or | A(R01) | B(R02) | D(R07) |  |  |
| And | C(R06) | D(R07) | A(R01) |  | B= B Xor A |
| Sub | A(R01) | S[2\*i](R03) | A(R01) |  | A=xxx-s[2\*i] |
| Andi | B(R02) | Rotator(R07) |  | 0000…11111 | B(4 downto0) |
| Beq | Rotator(R07) | 0(R00) |  | 5 | 乙 |
| Shr | A(R01) | Temp\_right(R08) |  | 1 |  |
| Shl | A(R01) | Temp\_left(R09) |  | 31 |  |
| Add | Temp\_left(R08) | Temp\_right(R09) | A(R01) |  | Round right rotate A |
| Subi | Rotator(R07) | Rotator(R07) |  | 1 |  |
| Jmp |  |  |  | 乙 | Rotate loop2 back |
| And | A(R01) | B(R02) | C(R06) |  |  |
| Nor | C(R06) | 0(R00) | C(R06) |  |  |
| Or | A(R01) | B(R02) | D(R07) |  |  |
| And | C(R06) | D(R07) | A(R01) |  | A =A Xor B |
| Jmp |  |  |  | 丙 | Outer loop back |
| Sub | A(R01) | S[0](R03) | A(R01) |  | A= A - s[0] |
| Sub | B(R02) | S[1](R04) | B(R02) |  | B= B - s[1] |
|  |  |  |  |  |  |