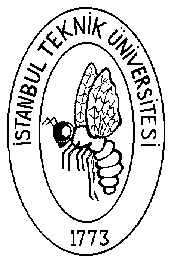
|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S3** | **S2** | **S1** | **S0** | **Cin** | **Operation** | **Function** |
| 0 | 0 | 0 | 0 | 0 | F ← A + B | Addition |
| 0 | 0 | 0 | 0 | 1 | F ← A + B + 1 | Add with carry |
| 0 | 0 | 0 | 1 | 0 | F ← A + | Subtract with borrow |
| 0 | 0 | 0 | 1 | 1 | F ← A + + 1 | Subtraction |
| 0 | 0 | 1 | 0 | 0 | F ← A | Transfer A |
| 0 | 0 | 1 | 0 | 1 | F ← A + 1 | Increment A |
| 0 | 0 | 1 | 1 | 0 | F ← A - 1 | Decrement A |
| 0 | 0 | 1 | 1 | 1 | F ← A | Transfer A |
| 0 | 1 | 0 | 0 | 0 | F ← A ∧ B | AND |
| 0 | 1 | 0 | 0 | 1 | F ← | NAND |
| 0 | 1 | 0 | 1 | 0 | F ← A ∨ B | OR |
| 0 | 1 | 0 | 1 | 1 | F ← | NOR |
| 0 | 1 | 1 | 0 | 0 | F ← A ⊕ B | XOR |
| 0 | 1 | 1 | 0 | 1 | F ← | XNOR |
| 0 | 1 | 1 | 1 | 0 | F ← | Complement |
| 0 | 1 | 1 | 1 | 1 | F ←A | Transfer |
| 1 | 0 | x | 0 | x | F ←cil | Circular left shift |
| 1 | 0 | x | 1 | x | F ←ashl / shl | Arithmetic/Logic left shift |
| 1 | 1 | 0 | 0 | x | F ←shr | Logic right shift |
| 1 | 1 | 0 | 1 | x | F ←cir | Circular right shift |
| 1 | 1 | 1 | 0 | x | F ←ashr | Arithmetic right shift |



ISTANBUL TECHNICAL

UNIVERSITY

COMPUTER ENGINEERING

COMPUTER ORGANIZATION

PROJECT #2 REPORT

**Group 42**

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**BUS1 BUS2 AC-INPR Select**

|  |  |  |  |
| --- | --- | --- | --- |
| s2 | s1 | s0 | Out |
| 0 | 0 | 0 | --- |
| 0 | 0 | 1 | AR |
| 0 | 1 | 0 | PC |
| 0 | 1 | 1 | DR |
| 1 | 0 | 0 | AC |
| 1 | 0 | 1 | IR |
| 1 | 1 | 0 | TR |
| 1 | 1 | 1 | Memory |

|  |  |
| --- | --- |
| ac-inpr\_select | Out |
| 0 | AC |
| 1 | INPR |

|  |  |
| --- | --- |
| s3 | Out |
| 0 | AR |
| 1 | PC |

**Memory Control**

|  |  |
| --- | --- |
| mem\_w/r | Func. |
| 0 | Write |
| 1 | Read |

**ALU Select Inputs**