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| Faculty of engineering – Cairo university |
| Computer Architecture Report: Team 7 |
| Phase I |
|  |
| **Supervised by: Dr. Mayada Hadhoud** |
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| |  |  |  | | --- | --- | --- | | Name | Sec | B.N | | Ammar Mohamed sobhi | 2 | 2 | | Ahmed Ayman | 1 | 1 | | Abeer Hussein | 1 | 43 | | Omar Ahmed Mohamed | 2 | 3 | |

One Operand instructions:

|  |  |  |  |
| --- | --- | --- | --- |
| Opcode | Rd | Not Used | Command |
| 5 bits | 3 bits | 8 bits |  |
| 00 000 | x | x | NOP |
| 00 001 | x | x | HLT |
| 00 010 | x | x | SETC |
| 00 011 | used | x | NOT Rdst |
| 00 100 | used | x | INC Rdst |
| 00 101 | used | x | OUT Rdst |
| 00 110 | used | x | IN Rdst |

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Two Operands instructions:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Opcode | rd | rs1 | rs2 | Immediate value | Not used | Command |
| 5 bits | 3 bits | 3 bits | 3 bits | 16 bits | 2 bits |  |
| 01 000 | used | used | x | x | x | Mov |
| 01 001 | used | used | used | x | x | Add |
| 01 010 | used | used | used | x | x | Sub |
| 01 011 | used | used | used | x | x | And |
| 01 100 | used | used | x | used | x | IAdd |

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Memory Operations instructions:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Opcode | Rd | rs1 | rs2 | Immediate value | Temp | Command |
| 5 bits | 3 bits | 3 bits | 3 bits | 16 bits | 2 bits |  |
| 10 000 | used | x | x | x | x | PUSH |
| 10 001 | used | x | x | x | x | POP |
| 10 010 | used | x | x | used | x | LDM |
| 10 011 | used | used | x | x | x | LDD |
| 10 100 | x | used | used | x | x | STD |

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Branch Operations instructions:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Opcode | Rd | Index | Not used | Command |
| 5 bits | 3 bits | 16 bits | 8 bits |  |
| 11 000 | used | x | x | JZ |
| 11 001 | used | x | x | JN |
| 11 010 | used | x | x | JC |
| 11 011 | used | x | x | JMP |
| 11 100 | used | x | x | CALL Rdst |
| 11 101 | x | x | x | Ret |
| 11 110 | x | used | x | INT index |
| 11 111 | x | x | x | RT1 |

**Schematic diagram**

