**Logo, company name

Description automatically generated**

**Microprocessors project report**

**Submitted to:** DR. Khaled Mohamed

**Group number:** 4

|  |  |  |
| --- | --- | --- |
| **Member Name** | **Section** | **BN** |
| Abdelrahman Mohamed Hamza Othman | 1 | 37 |
| Beshoy Morad Attia | 1 | 20 |
| Zeyad Tarek Khairy Aly Mousa | 1 | 28 |
| Zeyad Sherif Mohamed Ibrahim | 1 | 27 |

All required in phase 1 is Working without bug and Not Copied

**Addressing Mode**

All Addressing Mode is Working without bug and Not Copied

MOV, ADD, ADC, SUB, SBB, XOR, AND, NOP, SHR, SHL, CLC, ROR, ROL, RCR, RCL, INC, DEC‏

(17 Commands)

|  |  |  |  |
| --- | --- | --- | --- |
| **Feature** | **Working** | **Known bug** | **Copied or not** |
| Mov with register addressing Mode | Yes | None | Not Copied |
| Mov with Immediate addressing Mode | Yes | None | Not Copied |
| Mov with Direct addressing Mode | Yes | None | Not Copied |
| Mov with Register indirect addressing Mode | Yes | None | Not Copied |
| Add with register addressing Mode | Yes | None | Not Copied |
| Add with Immediate addressing Mode | Yes | None | Not Copied |
| Add with Direct addressing Mode | Yes | None | Not Copied |
| Add with Register indirect addressing Mode | Yes | None | Not Copied |
| Sub with register addressing Mode | Yes | None | Not Copied |
| Sub with Immediate addressing Mode | Yes | None | Not Copied |
| Sub with Direct addressing Mode | Yes | None | Not Copied |
| Sub with Register indirect addressing Mode | Yes | None | Not Copied |
| ADC register addressing Mode | Yes | None | Not Copied |
| ADC with Immediate addressing Mode | Yes | None | Not Copied |
| ADC with Direct addressing Mode | Yes | None | Not Copied |
| ADC with Register indirect addressing Mode | Yes | None | Not Copied |
| SBB with register addressing Mode | Yes | None | Not Copied |
| SBB with Immediate addressing Mode | Yes | None | Not Copied |
| SBB with Direct addressing Mode | Yes | None | Not Copied |
| SBB with Register indirect addressing Mode | Yes | None | Not Copied |
| XOR with register addressing Mode | Yes | None | Not Copied |
| XOR with Immediate addressing Mode | Yes | None | Not Copied |
| XOR with Direct addressing Mode | Yes | None | Not Copied |
| XOR with Register indirect addressing Mode | Yes | None | Not Copied |
| AND with register addressing Mode | Yes | None | Not Copied |
| AND with Immediate addressing Mode | Yes | None | Not Copied |
| AND with Direct addressing Mode | Yes | None | Not Copied |
| AND with Register indirect addressing Mode | Yes | None | Not Copied |
| NOP command | Yes | None | Not Copied |
| SHR with register addressing Mode | Yes | None | Not Copied |
| SHR with Immediate addressing Mode | Yes | None | Not Copied |
| SHR with Direct addressing Mode | Yes | None | Not Copied |
| SHR with Register indirect addressing Mode | Yes | None | Not Copied |
| SHL register addressing Mode | Yes | None | Not Copied |
| SHL with Immediate addressing Mode | Yes | None | Not Copied |
| SHL with Direct addressing Mode | Yes | None | Not Copied |
| SHL with Register indirect addressing Mode | Yes | None | Not Copied |
| CLC | Yes | None | Not Copied |
| ROR with register addressing Mode | Yes | None | Not Copied |
| ROR with Immediate addressing Mode | Yes | None | Not Copied |
| ROR with Direct addressing Mode | Yes | None | Not Copied |
| ROR with Register indirect addressing Mode | Yes | None | Not Copied |
| ROL with register addressing Mode | Yes | None | Not Copied |
| ROL with Immediate addressing Mode | Yes | None | Not Copied |
| ROL with Direct addressing Mode | Yes | None | Not Copied |
| ROL with Register indirect addressing Mode | Yes | None | Not Copied |
| RCR with register addressing Mode | Yes | None | Not Copied |
| RCR with Immediate addressing Mode | Yes | None | Not Copied |
| RCR with Direct addressing Mode | Yes | None | Not Copied |
| RCR with Register indirect addressing Mode | Yes | None | Not Copied |
| RCL with register addressing Mode | Yes | None | Not Copied |
| RCL with Immediate addressing Mode | Yes | None | Not Copied |
| RCL with Direct addressing Mode | Yes | None | Not Copied |
| RCL with Register indirect addressing Mode | Yes | None | Not Copied |
| INC register addressing Mode | Yes | None | Not Copied |
| INC with Immediate addressing Mode | Yes | None | Not Copied |
| INC with Direct addressing Mode | Yes | None | Not Copied |
| INC with Register indirect addressing Mode | Yes | None | Not Copied |
| DEC with register addressing Mode | Yes | None | Not Copied |
| DEC with Immediate addressing Mode | Yes | None | Not Copied |
| DEC with Direct addressing Mode | Yes | None | Not Copied |
| DEC with Register indirect addressing Mode | Yes | None | Not Copied |

**Types of Errors Detected**

All Type of Error is Working without bug and Not Copied

|  |  |  |  |
| --- | --- | --- | --- |
| **Type of Error** | **Working** | **Known bug** | **Copied or not** |
| Size Mismatch | Yes | None | Not Copied |
| Memory to memory operation | Yes | None | Not Copied |
| Incorrect addressing mode | Yes | None | Not Copied |
| Invalid register name | Yes | None | Not Copied |

**Type of Power Ups**

All Type of Powerups is Working without bug and Not Copied

|  |  |  |  |
| --- | --- | --- | --- |
| **Type of Power** | **Working** | **Known bug** | **Copied or not** |
| Executing a command on your own processor | Yes | None | Not Copied |
| Executing a command on your processor and your opponent processor at the same time | Yes | None | Not Copied |
| Changing the forbidden character only once | Yes | None | Not Copied |
| Clearing all registers at once. | Yes | None | Not Copied |
| An extra power up is introduced, letting each player be able to change the target value only once to any value other than values currently existing in any register for the two players (For Level 2) | Yes | None | Not Copied |

**Levels**

All Levels is Working without bug and Not Copied

|  |  |  |  |
| --- | --- | --- | --- |
| **Level Number** | **Working** | **Known bug** | **Copied or not** |
| 1 | Yes | None | Not Copied |
| 2 | Yes | None | Not Copied |

**Defining Usernames screen**

Screen Window is Working without bug and Not Copied

|  |  |  |  |
| --- | --- | --- | --- |
| **Screen** | **Working** | **Known bug** | **Copied or not** |
| initial point | Yes | None | Not Copied |
| The username should not exceed 15 characters and start with a letter (No digits or special characters). | Yes | None | Not Copied |

**Main screen**

Screen Window is Working without bug and Not Copied

|  |  |  |  |
| --- | --- | --- | --- |
| **Screen** | **Working** | **Known bug** | **Copied or not** |
| Start Chatting Key | Yes | None | Not Copied |
| Start Game Key | Yes | None | Not Copied |
| End Game Key | Yes | None | Not Copied |

**Game Screen**

All Features in Main Screen is Working without bug and Not Copied

|  |  |  |  |
| --- | --- | --- | --- |
| **Screen** | **Working** | **Known bug** | **Copied or not** |
| registers names | Yes | None | Not Copied |
| registers values | Yes | None | Not Copied |
| memory values | Yes | None | Not Copied |
| player name | Yes | None | Not Copied |
| memory offsets | Yes | None | Not Copied |
| player points | Yes | None | Not Copied |
| forbidden character for level 1 | Yes | None | Not Copied |
| wanted value | Yes | None | Not Copied |
| chat bar | Yes | None | Not Copied |
| flying object | Yes | None | Not Copied |
| gun | Yes | None | Not Copied |
| bullet | Yes | None | Not Copied |
| command bar | Yes | None | Not Copied |
| number of targets hit of each color | Yes | None | Not Copied |

**Flying Object Game**

Flying Object Game is Working without bug and Not Copied

|  |  |  |  |
| --- | --- | --- | --- |
| **Screen** | **Working** | **Known bug** | **Copied or not** |
| objects appear randomly at both screens at the same time | Yes | None | Not Copied |
| flying objects has colors and each color has a value | Yes | None | Not Copied |

**Level 2 Special Operation**

Level 2 Special Operation is Working without bug and Not Copied

|  |  |  |  |
| --- | --- | --- | --- |
| **Screen** | **Working** | **Known bug** | **Copied or not** |
| The forbidden character is hidden | Yes | None | Not Copied |
| command including the forbidden character will not be executed. | Yes | None | Not Copied |
| player is able to decide whether to execute it on his/her processor or the opponent processor. | Yes | None | Not Copied |
| player is able to put initial values for any register at the beginning of the level | Yes | None | Not Copied |
| An extra power up is introduced, letting each player be able to change the target value only once to any value other than values currently existing in any register for the two players (For Level 2) | Yes | None | Not Copied |