# **Arab Academy for Science and Technology**Faculty of Engineering





Arab Academy for Science, Technology & Maritime Transport

# Linker-Loader Report (December 2022)

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#### 1.0 About Project

The project was generated by only one student using Python programming language for its flexibility and wide variety of functions, what makes it the best choice to work on such project.

The Linker-Loader project supports all kind of records. It helps the user by simulating what happens in a sic machine memory while loading and linking by showing a detailed GUI that represents SIC machine memory.

#### Options:

- 1. Program Alerts user if he entered invalid address
- 2. User input any file he want to load.
- 3. User input any starting address he wants.
- 4. User can choose to load SIC or SIC/XE program
- 5. The loading-linking operation is presented in a well-organized GUI that represents SIC machine memory

#### Sample Input SIC/XE

HPROGA000000000000063

DLISTA0000040ENDA00000054

RLISTB0ENDB00LISTC0ENDC00

T0000200A03201D77100004050014

T0000540F000014FFFFF600003F000014FFFFC0

M00002405+LISTB

M00005406+LISTC

M00005706+ENDC

M00005706-LISTC

M00005A06+ENDC

M00005A06-LISTC

M00005A06+PROGA

M00005D06-ENDB

M00005D06+LISTB

M00006006+LISTB

M00006006-PROGA

E000000

HPROGB000000000007F

DLISTB0000060ENDB00000070

RLISTAØENDAØØLISTCØENDCØØ

T0000360B0310000077202705100000

T0000700F000000FFFFF6FFFFFFFFF0000060

M00003705+LISTA

M00003E05+ENDA

M00003E05-LISTA

M00007006+ENDA

M00007006-LISTA

M00007006+LISTC

M00007306+ENDC

M00007306-LISTC

M00007606+ENDC

M00007606-LISTC

.....

M00007606+LISTA

M00007906+ENDA

M00007906-LISTA

M00007C06+PROGB

M00007C06-LISTA

E000000

#### Sample Input SIC

#### HCOPYXX00100000107A

T0010001E1410334820390010362810303010154820613C100300102A0C103900102D
T00101E150C10364820610810334C0000454F46000003000000
T0020391E041030001030E0205D30203FD8205D2810303020575490392C205E38203F
T0020571C1010364C0000F1001000041030E02079302064509039DC20792C1036
T002073073820644C000005
E001000

+	<b></b>		·+
CSEC			LENGTH
PROGA	 	04000	000063
	LISTA	004040	
	ENDA	004054	
PROGB		004063	00007F
	LISTB	0040C3	
	ENDB	0040D3	
PROGC		0040E2	000051
	LISTC	004112	
	ENDC	004124	
		•	

## Loading SIC

Addresses	0	1	2	3	4	5	6	7	8	9	Α	В	C	D	E	F
001000	14	10	33	48	20	39	00	10	36	28	10	30	30	10	15	48
001010	20	61	3C	10	03	00	10	2A	0C	10	39	00	10	2D	0C	10
001020	36	48	20	61	08	10	33	4C	00	00	45	4F	46	00	00	03
001030	00	00	00	X	X	X	X	X	X	X	X	X	X	X	X	X
001040	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
001050	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
001060	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
001070	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
001080	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
001090	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
0010A0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
0010B0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
0010C0	X	X	X	Х	X	X	X	Х	X	Х	Х	X	Х	X	X	Х

# Loading SIC/XE

Addresses	0	1	2	3	4	5	6	7	8	9	Α	В	C	D	E	F
004000	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
004010	X	Х	Х	X	Х	X	X	X	X	X	X	X	X	X	X	X
004020	03	20	1D	77	10	40	C7	05	00	14	X	X	X	X	X	Х
004030	X	Х	Х	X	Х	X	X	X	X	X	Х	X	X	X	X	Х
004040	X	Х	Х	X	Х	X	X	X	X	X	Х	X	X	X	X	X
004050	X	Х	Х	X	00	41	26	00	00	08	00	40	51	00	00	04
004060	00	00	83	X	Х	X	X	X	X	X	X	X	X	X	X	Х
004070	Х	Х	X	X	X	X	X	X	X	X	X	X	X	X	X	Х
004080	Х	Х	Х	X	Х	X	X	X	X	X	X	X	X	X	X	Х
004090	Х	Х	Х	X	Х	X	X	X	X	03	10	40	40	77	20	27
0040A0	05	10	00	14	Х	X	X	X	X	X	X	X	X	X	X	Х
0040B0	Х	Х	Х	X	Х	X	X	Х	X	X	X	X	X	X	X	Х
0040C0	Х	Х	Х	X	Х	X	X	Х	X	X	X	X	X	X	X	Х
0040D0	X	X	Х	00	41	26	00	00	08	00	40	51	00	00	04	00
0040E0	00	83	Х	X	X	X	Х	X	X	X	X	X	X	X	X	X
0040F0	X	X	Х	X	X	X	X	X	X	X	03	10	40	40	77	10
004100	40	C7	05	10	00	14	X	X	X	X	X	X	X	X	X	X
004110	X	х	X	X	X	X	X	X	X	X	X	X	X	X	X	X
004120	X	X	X	X	00	41	26	00	00	08	00	40	51	00	00	04
004130	00	00	83	X	X	X	X	X	X	X	X	X	X	X	X	X
004140	Х	X	Х	Х	Х	Х	Х	Х	Х	Х	Х	X	Х	Х	Х	Х

### Program Interaction

```
Welcome to Linker Loader

Please add file path: sicxe.txt

For SIC press: 1 / For SIC/XE press: 2

Please Enter Start Address: 004000

PandasGUI INFO – pandasgui.gui – Opening PandasGUI
```