## Experiment-3: August\_25, 2020.

Aim; Subtraction of two 8 but numbers:

- a) First number is greater than second.
- 6) First number is less than second number

Software Used & GNUAM 8085. . . Seems: by - resemble to -

Theory: The Intel 8085 is an 8-bit pprocession peroduced by Intel and introduced in March 1976. It is a softwire binary comp. with the more famous Intel 8080 with only 2 minor instadded to support its added interrupt & serial ITO feature,

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. 1237 -

· MOST.

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The Buggammer writes a purgram in assembly lang using these instruenctions. These instruenctions have been classified into following groups 5

1. Unita Transfer Group's . The same of th

Ex: mov, mvi, exi, LDA, STA Son permission way -

Z. ARTHMETIC GROUPS

Ex: ADD, SUB, INR, DAD.

3° LOGICAL GROUP:

EX: ANA, XRA, ORA, COMP & RAL.

4. JRANCH CONTROL GROUP.

Ex & JMP, JC, JZ, CALL, CZ, RST

5. I/O & Machine Control Group:

Exis IN, OUT, PUSH, POP, & HUT.

## ALCORITHM?

- 1º First number is greater than second number.
  - Get address of 1st number in HI Pair
  - 1st number in accumulator
  - Content of Hil pair increases from 2501 to 25024.

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Ex the ser out, and sent.

20 200 25 15 (AL) CE, 15

for no central for a fill .

" party loute from

in the Emission Counce where

- 1st number 2nd number.
- Cornerd of H-1 pair becomes 25084.
  - Stored Result in 2508.11.
- THE THOSE MOVE FATTER STEEL STEEL WITH CITES I MUNICETTIME 2. First number is less than second number.
  - Clear self C, to Store Sign bil
  - Get the first no from memory location
  - Get the second no from memory location,
  - Subtract second mo from first no.
  - If carry equal one,
  - Then inverment sug C,
  - Get 2's compliment result & store the result.
  - Else.
  - Store the result
  - nalt.

Flav Chart: buttle wift 1º Firist number is queater than second number (Start) load HL paid with foist operands memory advess. more first operand from romory to accum. Inoument Hipain to not Subspact with A Incoment H-1 pavel. Move the result from occ to memor (Stop) 2. First number is less than second numbers. (Start) Lood HI pair with first of memory add move it from memory to accumulator Inoument HI pair to next milialize (=00 Sutisact in with A) yes Ste covery = Incomment C Get 2s (omplement > Store the head human's it was

Brogsam & Output.

Address	Mnemonic	qua	Comments "	Address To	machine	State
2000	XI H	250IH	Load HL pair with outself	Immediate		10
2003	mou a, m		more first operand from men	n Indusect	man wood	7
2004	INXH		Intoferment HL paix	Reguler	ian felich	6 7
3005	308 M		subtract m width A	legister .	mem 3cad	1
2006	INX		imprement the table	Register	op fetch	6
2007	moum, A		Move from Acc to mornouy	matical	op fetori	7
2008	LILT	1	MALT	_	op files	41

output Pata

ata: 2501 - 064

2502 - 024.

Result: 2503 = 0411

I If First Number is greater than, second.

Pobleaus	Mnemonic	greand	Comments	Pobleces on C	modurie Foto
2000	WIH	25014	Lood HL Pain	Immediate	ap betch + 10
1003	mova,m		lood occumulate with memory	y Indused	op feten + 7
2004	TIN H		In orement Mc Pair	Register	a betch 6
	mul C	001	Clean C negister	Immediate	of fetch + 7
2006	SUBM		Subtract M with A	Indurect	persony and 7
2007	JNC STORE				
2008	INRC		Inovernent sugustes (		op codes 6
2009	901	01		Immodiate	memous 6
2010	LXI H	8050 U	Lond destination activities		op feters 1101
2011	movm, A		Plove the result	D	2mon Rad 7
2012	JUX H		the .	ancies In	nom recool!
2013	mov m, c		Close of the Branch		p fetch, 6 g
2014	INT			9-1	141

0: that: ada: 2501 - 044.

I of first number is ass

But: 203-024 C:1

Calculation:

Time Required:

a) Einst number is greater tran second For 8085: brystal frequency = 6M42

clock frequency = crystal frequency

= 8M42 .

T= 1 = 0.883 ps.

Blal no. of Tstates & (10+7+6+7+10+4) Tstate

- 44T states

:. Total Timo = 0.333 XID 6x44

b) Total mo of Tstates = 10+7+6+7+7+6+10+7+6+4+4 - 74 states

Result: The program were written to subtract 2 stit numbers.