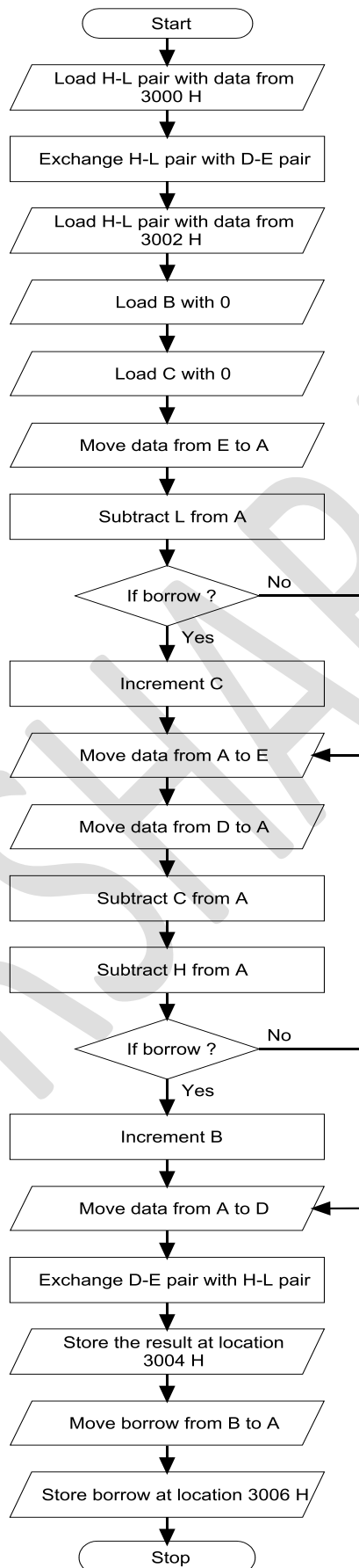# Flow Chart to Subtract Two 16-bit Numbers With Borrow

Program to Subtract Two 16-bit Numbers With Borrow

Address	Mnemonics	Operand	Opcode	Remarks
2000	LHLD	3000 H	2A	Load H-L pair with data from 3000H
2001			00	
2002			30	
2003	XCHG		EB	Exchange data from H-L pair with D-E
2004	LHLD	3002 H	2A	Load H-L pair with data from 3002 H
2005			02	
2006			30	
2007	MVI	B, 00 H	06	Move 0 H to B
2008			00	
2009	MVI	C, 00 H	0E	Move 0 H to C
200A			00	
200B	MOV	A, E	7B	Move lower order of 1st no. to A
200C	SUB	L	95	Subtract lower order L from A
200D	JNC	2011 H	D2	Jump to2011 H if there is no borrow
200E			0F	
200F			20	
2010	INR	C	0C	If borrow, then increment C
2011	MOV	E, A	5F	Move lower order back to E
2012	MOV	A, D	7A	Move higher order of 1st no. to A
2013	SUB	C	91	First, subtract borrow from A
2014	SUB	H	94	Now, subtract higher order from A
2015	JNC	2019 H	D2	Jump to 2019 H if there is no borrow
2016			19	
2017			20	
2018	INR	B	04	If borrow, increment B
2019	MOV	D, A	57	Move higher order back to D
201A	XCHG		EB	Exchange the result from D-E with H-L
201B	SHLD	3004 H	22	Store the result al location 3004 H
201C			04	
201D			30	
201E	MOV	A, B	78	Move borrow to A
201F	STA	3006 H	32	Store borrow at location 3006 H
2020			06	
2021			30	
2022	HLT		76	Halt

Before Execution: **After Execution:**

3000: 02 H   3004: FE H
3001: 02 H   3005: FD H
3002: 04 H   3006: 01 H
3003: 04 H

The result is in 2's complement form.