

# MOS 6502 / MOS 6510

Deep Dive Loading / Storing

LDA STA ADC

LDA    Load Accumulator with Memory

M -> A

N Z C I D V  
+ + - - - -

addressing	assembler	opc	bytes	cycls
immediate	LDA #oper	A9	2	2
zeropage	LDA oper	A5	2	3
zeropage,X	LDA oper,X	B5	2	4
absolute	LDA oper	AD	3	4
absolute,X	LDA oper,X	BD	3	4*
absolute,Y	LDA oper,Y	B9	3	4*
(indirect,X)	LDA (oper,X)	A1	2	6
(indirect),Y	LDA (oper),Y	B1	2	5*

- \*    add 1 to cycles if page boundary is crossed
- \*\* add 1 to cycles if branch occurs on same page  
    add 2 to cycles if branch occurs to different page
- Legend to Flags:    + .... modified  
                      - .... not modified  
                      1 .... set  
                      0 .... cleared  
                      M6 .... memory bit 6  
                      M7 .... memory bit 7

STA    Store Accumulator in Memory

A -> M

N Z C I D V  
- - - - -

addressing	assembler	opc	bytes	cycls
zeropage	STA oper	85	2	3
zeropage,X	STA oper,X	95	2	4
absolute	STA oper	8D	3	4
absolute,X	STA oper,X	9D	3	5
absolute,Y	STA oper,Y	99	3	5
(indirect,X)	STA (oper,X)	81	2	6
(indirect),Y	STA (oper),Y	91	2	6

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- \*\* add 1 to cycles if branch occurs on same page  
    add 2 to cycles if branch occurs to different page
- Legend to Flags:    + .... modified  
                      - .... not modified  
                      1 .... set  
                      0 .... cleared  
                      M6 .... memory bit 6  
                      M7 .... memory bit 7

ADC    Add Memory to Accumulator with Carry

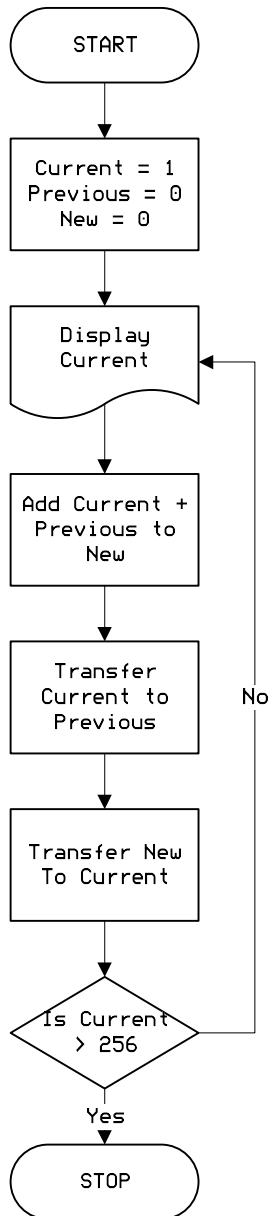
A + M + C -> A, C

N Z C I D V  
+ + + - - +

addressing	assembler	opc	bytes	cycls
immediate	ADC #oper	69	2	2
zeropage	ADC oper	65	2	3
zeropage,X	ADC oper,X	75	2	4
absolute	ADC oper	6D	3	4
absolute,X	ADC oper,X	7D	3	4*
absolute,Y	ADC oper,Y	79	3	4*
(indirect,X)	ADC (oper,X)	61	2	6
(indirect),Y	ADC (oper),Y	71	2	5*

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- \*\*    add 1 to cycles if branch occurs on same page  
      add 2 to cycles if branch occurs to different page
- Legend to Flags:    + .... modified  
                      - .... not modified  
                      1 .... set  
                      0 .... cleared  
                      M6 .... memory bit 6  
                      M7 .... memory bit 7

# Fibonacci Series



0  
1+  
=1+  
=2+  
=3+  
=5+  
=8+  
=13+  
=21+  
=34+  
=55+  
=89+  
=144+  
=233