

# Aritmetyczna instrukcja

operacje:  $+$ ,  $-$ ,  $\times$ ,  $\div$

rodaje:  $\sim 8, 16$  bitów cięła  
- BCD - Łódź (

priznały

# 1.1 SEITZ

ADD

ADC

dst, src

dst, src

$dst \leftarrow dst + src$

$dst \leftarrow dst + src + C$

$R_1/M, R_2/M \Rightarrow R, M$

$M, R$   
 $R_1, R_2$

$\rightarrow (2 \div 4)B$

$R/M, data$

$(3 \div 6)B$

$Ac, data$

$(2 \div 3)B$

Ανάλυση μεντέρας:

INC R/M

INC R

Ανάλυση Συναρτήσεων:

$$\begin{array}{r} \phi 9 \\ + \phi 1 \\ \hline 1 \phi \end{array}$$

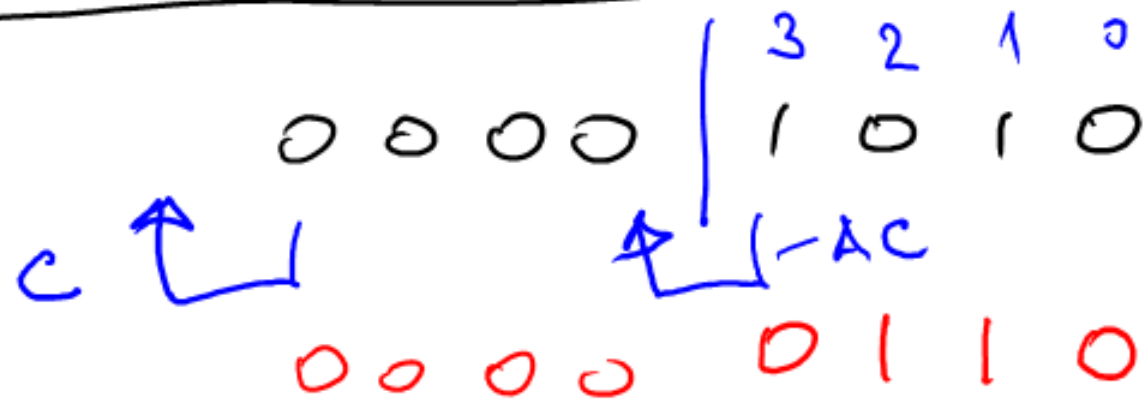
0000 100 |  
0000 000 |

0000 1010

0001 0000

Κορρέζα

# Operàcia Korekcia



...

MOV AL, 10D

AL ← 0000 1010

Korekcia

→ AL ← ? 0001 0000

AAA

DAA

- 1.) BCD operands
- 2.) Korekcia bez prír. po arif. operácii

## 2. Odčitání

SCIB

dst, src

$dst \leftarrow dst - src$

SBB

dst, src

$dst \leftarrow dst - src - CF$

$R_1/M, R_2/M$

$R/M, data$

$AC, data$

---

DEC

$R/M$

$R$

Porov name

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CMP

dst, src

F ← dst - src

---

AAS

DAS

### 3.7 Nachbetrachtung:

IMUL

R/M

8-bit :  $AX \leftarrow AL * op$

16-bit :  $DX:AX \leftarrow AX * op$

AAM

## 4.7 Dekrudo

1 DIV R | M

8-bit

AL  $\leftarrow$  AX  $\div$  op  
AH  $\leftarrow$  zvyšok

16-bit

AX  $\leftarrow$  (DX:AX)  $\div$  op  
DX  $\leftarrow$  zvyšok

AAD



CBW

$AL < 80H \Rightarrow AH \leftarrow 00H$

$AL \geq 80H \Rightarrow AH \leftarrow FFH$

CWD

$AX < 8000H \Rightarrow DX \leftarrow 0000H$

$AX \geq 8000H \Rightarrow DX \leftarrow FFFFH$

# Instrukcie pre bitove' operacie:

— logické op.

posuny



NOT

R/M

— negácia

→ logické  
aritmetické.

AND

OR

XOR

TEST

dst, src

dst ← dst AND src

dst ← dst OR src

dst ← dst XOR src

"F" ← dst AND src

R<sub>1</sub>/M, R<sub>2</sub>/M

R/M, data

AC, data

Diagram:

op: R/M, count

SHL

SAL



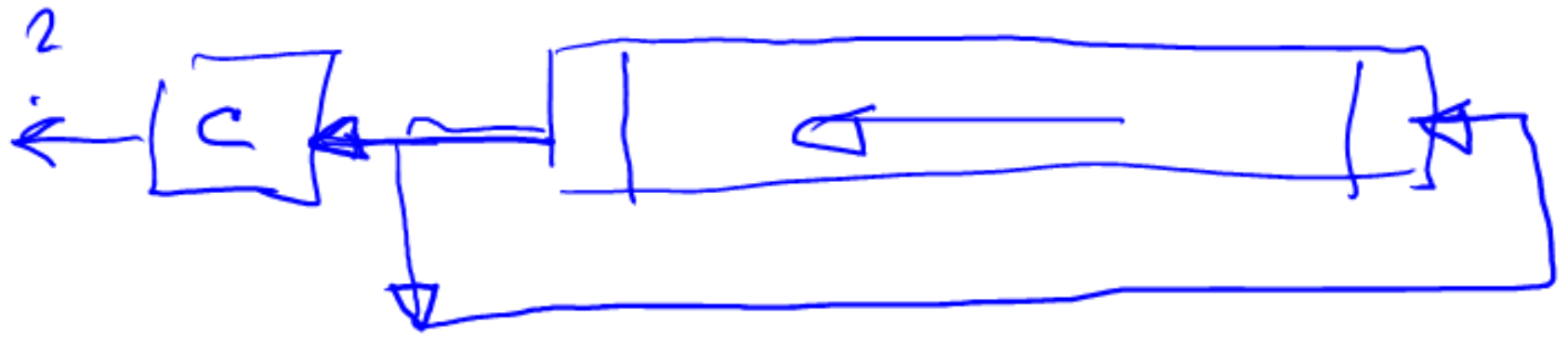
SAR



SAR



ROL



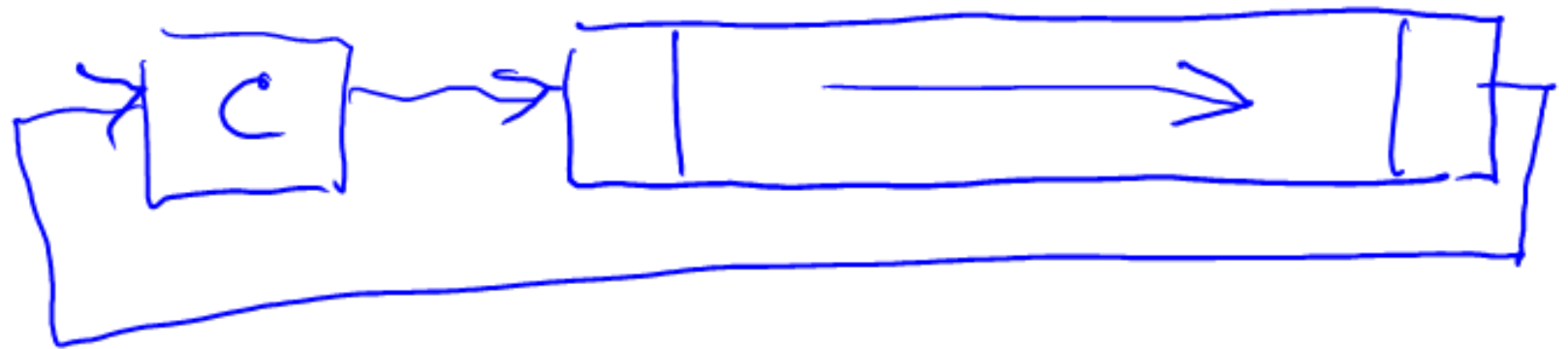
ROR



RCL



RCR



Retă și core' opera'ci :

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implicitare :

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zdroj (src) : — data segment

FA:16 \* DS + SI

Log: DS: SI

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ciol (dst) : — extra segment

ES: DI

# Prefix

REP — nepodmienené opakovanie

REPE  
REPZ } podmienené opakovanie  
ak  $Z = 1$

REPNE  
REPNT } podmienené opakovanie  
ak  $Z = 0$

→ max. 'CX'

1.) MOVSB  
MOVSW  
REP

$[ES:DI] \leftarrow [DS:SI]$

2.) CMPSB  
CMPSW

$CF \leftarrow [DS:SI] - [ES:DI]$

REPE

$\rightarrow REPZ$

REPNE

$\leftrightarrow REPNZ$



3.) SCASB  
SCASW

$CF \leftarrow AC - [ES:DI]$



4.) LODSB  
LODSW

$AC \leftarrow [DS: SI]$

5.) STOSB  
STOSW

$[ES: DI] \leftarrow AC$

⋮  
K1: MOV AL, [SI]  
CMP [DI], AL  
JZ EQUAL  
INC SI  
INC DI  
DEC CX  
JNZ K1  
⋮

REPNE CMPSB

JZ EQUAL

EQUAL: ;  
;

NI MOV AL,[SI]  
MOV [DI],AL  
INC SI  
INC DI  
DEC CX  
JNZ NI

REP MOVSB

# Radiace intenziv

— orlo'danie priznačok:

STC

CLC

CMC

---

STD

CLD

---

STI

CLI

- synchronizácia s ostatnými:

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WAIT  $\longleftrightarrow$  TEST

HLT  $\longleftrightarrow$  čakať na prerušenie

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LOCK  $\longleftrightarrow$  LOCK

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NOP