**Constante de tip string. Reprezentare in memorie si utilizare in cadrul unor instructiuni de transfer.**

In cazul initializarii unei zone de memorie cu valori de tip constante string (sizeof > 1) tipul de data utilizat in definire (dw, dd, dq) are rol doar de rezervare a spatiului dorit, ordinea de “umplere” a zonei de memorie respective fiind ordinea in care apar caracterele (octetii) in cadrul constantei de tip string:

a6 dd '123', '345','abcd'    ; se vor defini 3 dublucuvinte continutul lor fiind

31 32 33 00|33 34 35 00|61 62 63 64|

a6 dd '1234' ; 31 32 33 34

a6 dd '12345' , ‘abc’; 31 32 33 34|35 00 00 00| 61 62 63 00|

a7 dw '23','45' 32 33 34 35| - 2 cuvinte = 1 doubleword

a7 dw '2345' - 2 cuvinte - 32 33|34 35|

a7 dw '23456' - 3 cuvinte - 32 33|34 35|36 00|

'…' = "…"

a8 dw '1', '2', '3'    - 3 cuvinte - 31 00|32 00|33 00

a9 dw '123'    - 2 cuvinte - 31 32|33 00

Urmatoarele definitii produc aceeasi configuratie de memorie

dd 'ninechars' ; constanta string doubleword

dd 'nine','char','s' ; 3 dublucuvinte

db 'ninechars',0,0,0 ; “umplere” zona prin secventa de octeti

A character constant with more than one byte will be arranged with little-endian order in mind: if you code

mov eax,'abcd'

then the constant generated is not 0x61626364, but 0x64636261, so that if you were then to store the value into memory, it would read abcd rather than dcba. This is also the sense of character constants understood by the Pentium's CPUID instruction.

….but if you code a data definition like a7 dd '2345' the corresponding memory layout will be NO little-endian representation, but |32 33 34 35|

Astfel, comparativ si in rezumat:

a7 dd '2345' ; |32 33 34 35|

a8 dd 12345678h ; |78 56 34 12|

…….

mov eax, '2345' 🡪 EAX = '5432' = 35 34 33 32

mov ebx, [a7] 🡪 EBX = '5432' = 35 34 33 32

DIFERA de comportamentul constantelor de tip numeric atunci cand apar intr-o instructiune de transfer:

mov ecx, 12345678h ; ECX = 12345678h

mov edx, [a8] 🡪 EDX = 12345678h

In cazul in care se foloseste DB ca directiva de definire a datelor e normal ca ordinea octetilor data in specificarea constantei sa se regaseasca si in memorie in mod similar, deci acest caz nu comporta analiza si discutii suplimentare.