**Ministerul Educației și Cercetării al Republicii Moldova**

**Universitatea Tehnică a Moldovei**

**Facultatea Calculatoare, Informatică și Microelectronică**

Text

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**Departamentul Ingineria Software și Automatică**

Raport

Lucrarea de laborator nr. 1

**Arhitecturi de calculatoare**

|  |  |  |
| --- | --- | --- |
| **A efectuat:** | Student grupa TI-231 FR | Apareci Aurica |
| **A verificat:** | lector universitar | Postovan D. |

**Chișinău 2025**

**LUCRAREA DE LABORATOR 1**

Elaborare programelor în limbajul de asamblare MASM în Visual Studio

**SCOPUL LUCRARII**

Lucrarea urmărește familiarizarea studenților cu registre microprocesoarelor pe 16, 32 și 64 de biți, cu mediul de dezvoltare a programelor Visual Studio. Se prezintă setările mediului Visual Studio necesare pentru a elabora, rula și depăna aplicațiile elaborate în limbajul de asamblare MASM utilizând registre pe 16, 32 și 64 de biți.

**SARCINA**

* De inclus în raport codurile-sursă (\*.asm) pentru programele de 16, 32 și 64 biți, comentate;
* De inclus fișierele-listing (\*.lst) pentru programele de 16, 32 și 64 biți;
* De prezentat pașii rulării programelor în Debug Mode;
* Concluzii.

1. **Codul sursa (.asm) pe 16 biți**

INCLUDE Irvine16.inc

.DATA

Promt DB 'Doresti sa devii programator?(da/nu)-[y/n]$'

Dad DB 13,10,'Vei deveni!',13,10,'$'

Nud DB 13,10,'Vei deveni filosof!',13,10,'$'

.CODE ;directiva ce declara inceputul segmentului de cod

main PROC ;se indica procedura cu numele main

mov ax,@data ;Initializarea segmentului de date ds

mov ds,ax ;cu adresa datelor

mov dx,OFFSET Promt ;in dx- deplasamentul (offset) sirului Promt

mov ah,9 ;functia MSDOS, codul functiei 9 - afisarea sirului

Int 21h ;intreruperea 21h - apel la serviciul MSDOS

mov ah,1 ;functia MSDOS, codul functiei 1 - introducerea de la tastatura(codul tastei)

Int 21h ;codul tastei in registrul al

cmp al,'y' ;compararea continutului registrului al cu codul ASCII a literei y

jz IsDad ;salt conditionat (jz-jump if zero), daca rezultatul compararii este zero, salt la eticheta IsDad

cmp al,'n' ;compararea- din al se scade codul ASCII a literei n

jz IsNud ;da, rezultatul compararii este zero, salt la eticheta IsNud

IsDad: mov dx,OFFSET Dad ;in dx- offsetul sirului Dad

Jmp SHORT Disp ;Salt neconditionat la eticheta "Disp"

IsNud: mov dx,OFFSET Nud ;in dx- offsetul sirului "Nud"

Disp: mov ah,9 ;functia MSDOS - afisarea sirului

Int 21h ;apel la serviciul MSDOS

mov ah,1 ;asteptarea unui clic

Int 21h

Exit ;apel la procedura de iesirea din program, din fisierul Irvine16.inc

main ENDP ;sfarsitul procedurii main

END main ;finalizarea programului/ punctul de intrare in program

1. **Listingul datelor pe 16 biți**

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;exemplu de program pe 16 biti

INCLUDE Irvine16.inc

C ; Irvine16.inc - Include file for programs using

C ; the Irvine16.lib (Real-address mode library).

C

C ; Last update: 7/29/05

C

C .NOLIST

C .LIST

C

0000 .DATA

0000 44 6F 72 65 73 74 Promt DB 'Doresti sa devii programator?(da/nu)-[y/n]$'

69 20 73 61 20 64

65 76 69 69 20 70

72 6F 67 72 61 6D

61 74 6F 72 3F 28

64 61 2F 6E 75 29

2D 5B 79 2F 6E 5D

24

002B 0D 0A 56 65 69 20 Dad DB 13,10,'Vei deveni!',13,10,'$'

64 65 76 65 6E 69

21 0D 0A 24

003B 0D 0A 56 65 69 20 Nud DB 13,10,'Vei deveni filosof!',13,10,'$'

64 65 76 65 6E 69

20 66 69 6C 6F 73

6F 66 21 0D 0A 24

0000 .CODE ;directiva ce declara inceputul segmentului de cod

0000 main PROC ;se indica procedura cu numele main

0000 B8 ---- R mov ax,@data ;Initializarea segmentului de date ds

0003 8E D8 mov ds,ax ;cu adresa datelor

0005 BA 0000 R mov dx,OFFSET Promt ;in dx- deplasamentul (offset) sirului Promt

0008 B4 09 mov ah,9 ;functia MSDOS, codul functiei 9 - afisarea sirului

000A CD 21 Int 21h ;intreruperea 21h - apel la serviciul MSDOS

000C B4 01 mov ah,1 ;functia MSDOS, codul functiei 1 - introducerea de la tastatura(codul tastei)

000E CD 21 Int 21h ;codul tastei in registrul al

0010 3C 79 cmp al,'y' ;compararea continutului registrului al cu codul ASCII a literei y

0012 74 04 jz IsDad ;salt conditionat (jz-jump if zero), daca rezultatul compararii este zero, salt la eticheta IsDad

0014 3C 6E cmp al,'n' ;compararea- din al se scade codul ASCII a literei n

0016 74 05 jz IsNud ;da, rezultatul compararii este zero, salt la eticheta IsNud

0018 BA 002B R IsDad: mov dx,OFFSET Dad ;in dx- offsetul sirului Dad

001B EB 03 Jmp SHORT Disp ;Salt neconditionat la eticheta "Disp"

001D BA 003B R IsNud: mov dx,OFFSET Nud ;in dx- offsetul sirului "Nud"

0020 B4 09 Disp: mov ah,9 ;functia MSDOS - afisarea sirului

0022 CD 21 Int 21h ;apel la serviciul MSDOS

0024 B4 01 mov ah,1 ;asteptarea unui clic

0026 CD 21 Int 21h

Exit ;apel la procedura de iesirea din program, din fisierul Irvine16.inc

002C main ENDP ;sfarsitul procedurii main

END main ;finalizarea programului/ punctul de intrare in program

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x16.asm Symbols 2 - 1

Structures and Unions:

N a m e Size

Offset Type

CursorPosStruc . . . . . . . . . 0002

Ycoord . . . . . . . . . . . . 0000 Byte

Xcoord . . . . . . . . . . . . 0001 Byte

ExtGetDskFreSpcStruc . . . . . . 002C

StructSize . . . . . . . . . . 0000 Word

Level . . . . . . . . . . . . 0002 Word

SectorsPerCluster . . . . . . 0004 DWord

BytesPerSector . . . . . . . . 0008 DWord

AvailableClusters . . . . . . 000C DWord

TotalClusters . . . . . . . . 0010 DWord

AvailablePhysSectors . . . . . 0014 DWord

TotalPhysSectors . . . . . . . 0018 DWord

AvailableAllocationUnits . . . 001C DWord

TotalAllocationUnits . . . . . 0020 DWord

Rsvd . . . . . . . . . . . . . 0024 DWord

FPU\_ENVIRON . . . . . . . . . . 001C

controlWord . . . . . . . . . 0000 Word

statusWord . . . . . . . . . . 0004 Word

tagWord . . . . . . . . . . . 0008 Word

instrPtrLow . . . . . . . . . 000C Word

opcodeAndInstrPtrHi . . . . . 0010 DWord

operandPtrLow . . . . . . . . 0014 Word

operandPtrHi . . . . . . . . . 0018 DWord

TimeRecord . . . . . . . . . . . 0004

hours . . . . . . . . . . . . 0000 Byte

minutes . . . . . . . . . . . 0001 Byte

seconds . . . . . . . . . . . 0002 Byte

hhss . . . . . . . . . . . . . 0003 Byte

VideoInfoStruc . . . . . . . . . 0041

supportedInfoPtr . . . . . . . 0000 DWord

videoMode . . . . . . . . . . 0004 Byte

numCharColumns . . . . . . . . 0005 Word

videoBufferLen . . . . . . . . 0007 Word

videoBufferStartPtr . . . . . 0009 Word

cursors . . . . . . . . . . . 000B Word

cursorStartLine . . . . . . . 001B Byte

cursorEndLine . . . . . . . . 001C Byte

activeDisplayPage . . . . . . 001D Byte

adapterBasePortAddr . . . . . 001E Word

currentRegister3B8or3D8 . . . 0020 Byte

currentRegister3B9or3D9 . . . 0021 Byte

numCharRows . . . . . . . . . 0022 Byte

characterScanHeight . . . . . 0023 Word

activeDisplayCode . . . . . . 0025 Byte

inactiveDisplayCode . . . . . 0026 Byte

numberOfColors . . . . . . . . 0027 Word

numberOfVideoPages . . . . . . 0029 Byte

numberOfScanLines . . . . . . 002A Word

primaryCharBlock . . . . . . . 002C Byte

secondaryCharBlock . . . . . . 002D Byte

miscStateInfo . . . . . . . . 002E Byte

videoMemAvail . . . . . . . . 0032 Byte

savePointerStateInfo . . . . . 0033 Byte

Segments and Groups:

N a m e Size Length Align Combine Class

DGROUP . . . . . . . . . . . . . GROUP

\_DATA . . . . . . . . . . . . . 16 Bit 0053 Word Public 'DATA'

STACK . . . . . . . . . . . . . 16 Bit 0200 Para Stack 'STACK'

\_TEXT . . . . . . . . . . . . . 16 Bit 002C Word Public 'CODE'

Procedures, parameters, and locals:

N a m e Type Value Attr

Clrscr . . . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

Crlf . . . . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

Delay . . . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

DumpMem . . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

DumpRegs . . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

GetCommandtail . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

GetMaxXY . . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

GetMseconds . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

Gotoxy . . . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

IsDigit . . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

Random32 . . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

RandomRange . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

Randomize . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

ReadChar . . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

ReadFloat . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

ReadHex . . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

ReadInt . . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

ReadString . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

SetTextColor . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

ShowFPUStack . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

Str\_compare . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

Str\_copy . . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

Str\_length . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

Str\_trim . . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

Str\_ucase . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

WaitMsg . . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

WriteBinB . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

WriteBin . . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

WriteChar . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

WriteDec . . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

WriteFloat . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

WriteHexB . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

WriteHex . . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

WriteInt . . . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

WriteString . . . . . . . . . . P Near 0000 Length= 0000 External STDCALL

main . . . . . . . . . . . . . . P Near 0000 \_TEXT Length= 002C Public STDCALL

IsDad . . . . . . . . . . . . L Near 0018 \_TEXT

IsNud . . . . . . . . . . . . L Near 001D \_TEXT

Disp . . . . . . . . . . . . . L Near 0020 \_TEXT

Symbols:

N a m e Type Value Attr

@CodeSize . . . . . . . . . . . Number 0000h

@DataSize . . . . . . . . . . . Number 0000h

@Interface . . . . . . . . . . . Number 0003h

@Model . . . . . . . . . . . . . Number 0002h

@cmdline . . . . . . . . . . . . Text OFFSET \_\_98765765cmdline

@code . . . . . . . . . . . . . Text \_TEXT

@data . . . . . . . . . . . . . Text DGROUP

@fardata? . . . . . . . . . . . Text FAR\_BSS

@fardata . . . . . . . . . . . . Text FAR\_DATA

@stack . . . . . . . . . . . . . Text DGROUP

ACTION\_CREATED\_OPENED . . . . . Number 0002h

ACTION\_OPENED . . . . . . . . . Number 0001h

ACTION\_REPLACED\_OPENED . . . . . Number 0003h

Dad . . . . . . . . . . . . . . Byte 002B \_DATA

FILE\_CREATE . . . . . . . . . . Number 0010h

FILE\_OPEN . . . . . . . . . . . Number 0001h

FILE\_TRUNCATE . . . . . . . . . Number 0002h

LIGHT\_BLUE . . . . . . . . . . . Number 0009h

LIGHT\_CYAN . . . . . . . . . . . Number 000Bh

LIGHT\_GRAY . . . . . . . . . . . Number 0007h

LIGHT\_GREEN . . . . . . . . . . Number 000Ah

LIGHT\_MAGENTA . . . . . . . . . Number 000Dh

LIGHT\_RED . . . . . . . . . . . Number 000Ch

Nud . . . . . . . . . . . . . . Byte 003B \_DATA

OPEN\_ACCESS\_READONLY . . . . . . Number 0000h

OPEN\_ACCESS\_READWRITE . . . . . Number 0002h

OPEN\_ACCESS\_RO\_NOMODLASTACCESS . Number 0004h

OPEN\_ACCESS\_WRITEONLY . . . . . Number 0001h

OPEN\_FLAGS\_ALIAS\_HINT . . . . . Number 0400h

OPEN\_FLAGS\_COMMIT . . . . . . . Number 4000h

OPEN\_FLAGS\_NOCRITERR . . . . . . Number 2000h

OPEN\_FLAGS\_NOINHERIT . . . . . . Number 0080h

OPEN\_FLAGS\_NO\_BUFFERING . . . . Number 0100h

OPEN\_FLAGS\_NO\_COMPRESS . . . . . Number 0200h

OPEN\_SHARE\_COMPATIBLE . . . . . Number 0000h

OPEN\_SHARE\_DENYNONE . . . . . . Number 0040h

OPEN\_SHARE\_DENYREADWRITE . . . . Number 0010h

OPEN\_SHARE\_DENYREAD . . . . . . Number 0030h

OPEN\_SHARE\_DENYWRITE . . . . . . Number 0020h

Promt . . . . . . . . . . . . . Byte 0000 \_DATA

\_A\_ARCH . . . . . . . . . . . . Number 0020h

\_A\_HIDDEN . . . . . . . . . . . Number 0002h

\_A\_NORMAL . . . . . . . . . . . Number 0000h

\_A\_RDONLY . . . . . . . . . . . Number 0001h

\_A\_SYSTEM . . . . . . . . . . . Number 0004h

\_A\_VOLID . . . . . . . . . . . . Number 0008h

black . . . . . . . . . . . . . Number 0000h

blue . . . . . . . . . . . . . . Number 0001h

brown . . . . . . . . . . . . . Number 0006h

cyan . . . . . . . . . . . . . . Number 0003h

exit . . . . . . . . . . . . . . Text .EXIT

gray . . . . . . . . . . . . . . Number 0008h

green . . . . . . . . . . . . . Number 0002h

lightBlue . . . . . . . . . . . Number 0009h

lightCyan . . . . . . . . . . . Number 000Bh

lightGray . . . . . . . . . . . Number 0007h

lightGreen . . . . . . . . . . . Number 000Ah

lightMagenta . . . . . . . . . . Number 000Dh

lightRed . . . . . . . . . . . . Number 000Ch

magenta . . . . . . . . . . . . Number 0005h

red . . . . . . . . . . . . . . Number 0004h

white . . . . . . . . . . . . . Number 000Fh

yellow . . . . . . . . . . . . . Number 000Eh

0 Warnings

0 Errors

1. **Testare programului pe 16 biți**
2. **Codul sursa (.asm) pe 32 biți**

INCLUDE Irvine32.inc

.data

Promt DB 'Doresti sa devii programator?(da/nu)-[y/n]', 0

Dad DB 13, 10, 'Vei deveni!', 13, 10, 0

Nud DB 13, 10, 'Vei deveni filosof!', 13, 10, 0

.code ;directiva ce declara inceputul segmentului de cod

main PROC ;se indica procedura cu numele main

mov edx, OFFSET Promt

call WriteString

call ReadChar

cmp al,'y' ;compararea continutului registrului al cu codul ASCII a literei y

jz IsDad ;salt conditionat (jz-jump if zero), daca rezultatul compararii este zero, salt la eticheta IsDad

cmp al,'n' ;compararea- din al se scade codul ASCII a literei n

jz IsNud ;da, rezultatul compararii este zero, salt la eticheta IsNud

IsDad: mov edx,OFFSET Dad ;in edx offsetul sirului Dad

call WriteString

jmp ex

IsNud: mov edx,OFFSET Nud ;in edx offsetul sirului "Nud"

call WriteString

ex:

exit ;apel la procedura de iesirea din program, din fisierul Irvine32.inc

main ENDP ;sfarsitul procedurii main

END main ;finalizarea programului/ punctul de intrare in program

1. **Listingul datelor pe 32 biți**

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x32.asm Symbols 2 - 1

Structures and Unions:

N a m e Size

Offset Type

CONSOLE\_CURSOR\_INFO . . . . . . 00000008

dwSize . . . . . . . . . . . . 00000000 DWord

bVisible . . . . . . . . . . . 00000004 DWord

CONSOLE\_SCREEN\_BUFFER\_INFO . . . 00000016

dwSize . . . . . . . . . . . . 00000000 DWord

dwCursorPosition . . . . . . . 00000004 DWord

wAttributes . . . . . . . . . 00000008 Word

srWindow . . . . . . . . . . . 0000000A QWord

dwMaximumWindowSize . . . . . 00000012 DWord

COORD . . . . . . . . . . . . . 00000004

X . . . . . . . . . . . . . . 00000000 Word

Y . . . . . . . . . . . . . . 00000002 Word

FILETIME . . . . . . . . . . . . 00000008

loDateTime . . . . . . . . . . 00000000 DWord

hiDateTime . . . . . . . . . . 00000004 DWord

FOCUS\_EVENT\_RECORD . . . . . . . 00000004

bSetFocus . . . . . . . . . . 00000000 DWord

FPU\_ENVIRON . . . . . . . . . . 0000001C

controlWord . . . . . . . . . 00000000 Word

statusWord . . . . . . . . . . 00000004 Word

tagWord . . . . . . . . . . . 00000008 Word

instrPointerOffset . . . . . . 0000000C DWord

instrPointerSelector . . . . . 00000010 DWord

operandPointerOffset . . . . . 00000014 DWord

operandPointerSelector . . . . 00000018 Word

INPUT\_RECORD . . . . . . . . . . 00000014

EventType . . . . . . . . . . 00000000 Word

Event . . . . . . . . . . . . 00000004 XmmWord

bKeyDown . . . . . . . . . . . 00000000 DWord

wRepeatCount . . . . . . . . . 00000004 Word

wVirtualKeyCode . . . . . . . 00000006 Word

wVirtualScanCode . . . . . . . 00000008 Word

uChar . . . . . . . . . . . . 0000000A Word

UnicodeChar . . . . . . . . . 00000000 Word

AsciiChar . . . . . . . . . . 00000000 Byte

dwControlKeyState . . . . . . 0000000C DWord

dwMousePosition . . . . . . . 00000000 DWord

dwButtonState . . . . . . . . 00000004 DWord

dwMouseControlKeyState . . . . 00000008 DWord

dwEventFlags . . . . . . . . . 0000000C DWord

dwSize . . . . . . . . . . . . 00000000 DWord

dwCommandId . . . . . . . . . 00000000 DWord

bSetFocus . . . . . . . . . . 00000000 DWord

KEY\_EVENT\_RECORD . . . . . . . . 00000010

bKeyDown . . . . . . . . . . . 00000000 DWord

wRepeatCount . . . . . . . . . 00000004 Word

wVirtualKeyCode . . . . . . . 00000006 Word

wVirtualScanCode . . . . . . . 00000008 Word

uChar . . . . . . . . . . . . 0000000A Word

UnicodeChar . . . . . . . . . 00000000 Word

AsciiChar . . . . . . . . . . 00000000 Byte

dwControlKeyState . . . . . . 0000000C DWord

MENU\_EVENT\_RECORD . . . . . . . 00000004

dwCommandId . . . . . . . . . 00000000 DWord

MOUSE\_EVENT\_RECORD . . . . . . . 00000010

dwMousePosition . . . . . . . 00000000 DWord

dwButtonState . . . . . . . . 00000004 DWord

dwMouseControlKeyState . . . . 00000008 DWord

dwEventFlags . . . . . . . . . 0000000C DWord

SMALL\_RECT . . . . . . . . . . . 00000008

Left . . . . . . . . . . . . . 00000000 Word

Top . . . . . . . . . . . . . 00000002 Word

Right . . . . . . . . . . . . 00000004 Word

Bottom . . . . . . . . . . . . 00000006 Word

SYSTEMTIME . . . . . . . . . . . 00000010

wYear . . . . . . . . . . . . 00000000 Word

wMonth . . . . . . . . . . . . 00000002 Word

wDayOfWeek . . . . . . . . . . 00000004 Word

wDay . . . . . . . . . . . . . 00000006 Word

wHour . . . . . . . . . . . . 00000008 Word

wMinute . . . . . . . . . . . 0000000A Word

wSecond . . . . . . . . . . . 0000000C Word

wMilliseconds . . . . . . . . 0000000E Word

WINDOW\_BUFFER\_SIZE\_RECORD . . . 00000004

dwSize . . . . . . . . . . . . 00000000 DWord

Segments and Groups:

N a m e Size Length Align Combine Class

FLAT . . . . . . . . . . . . . . GROUP

STACK . . . . . . . . . . . . . 32 Bit 00001000 Para Stack 'STACK'

\_DATA . . . . . . . . . . . . . 32 Bit 00000053 Para Public 'DATA'

\_TEXT . . . . . . . . . . . . . 32 Bit 00000034 Para Public 'CODE'

Procedures, parameters, and locals:

N a m e Type Value Attr

CloseFile . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

CloseHandle . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

Clrscr . . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

CreateFileA . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

CreateOutputFile . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

Crlf . . . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

Delay . . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

DumpMem . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

DumpRegs . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

ExitProcess . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

FileTimeToDosDateTime . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

FileTimeToSystemTime . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

FlushConsoleInputBuffer . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

FormatMessageA . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

GetCommandLineA . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

GetCommandTail . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

GetConsoleCP . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

GetConsoleCursorInfo . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

GetConsoleMode . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

GetConsoleScreenBufferInfo . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

GetDateTime . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

GetFileTime . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

GetKeyState . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

GetLastError . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

GetLocalTime . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

GetMaxXY . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

GetMseconds . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

GetNumberOfConsoleInputEvents . P Near 00000000 FLAT Length= 00000000 External STDCALL

GetProcessHeap . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

GetStdHandle . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

GetSystemTime . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

GetTextColor . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

GetTickCount . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

Gotoxy . . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

HeapAlloc . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

HeapCreate . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

HeapDestroy . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

HeapFree . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

HeapSize . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

IsDigit . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

LocalFree . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

MessageBoxA . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

MsgBoxAsk . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

MsgBox . . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

OpenInputFile . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

ParseDecimal32 . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

ParseInteger32 . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

PeekConsoleInputA . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

Random32 . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

RandomRange . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

Randomize . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

ReadChar . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

ReadConsoleA . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

ReadConsoleInputA . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

ReadDec . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

ReadFile . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

ReadFloat . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

ReadFromFile . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

ReadHex . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

ReadInt . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

ReadKeyFlush . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

ReadKey . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

ReadString . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

SetConsoleCursorInfo . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

SetConsoleCursorPosition . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

SetConsoleMode . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

SetConsoleScreenBufferSize . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

SetConsoleTextAttribute . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

SetConsoleTitleA . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

SetConsoleWindowInfo . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

SetFilePointer . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

SetLocalTime . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

SetTextColor . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

ShowFPUStack . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

Sleep . . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

StrLength . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

Str\_compare . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

Str\_copy . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

Str\_length . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

Str\_trim . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

Str\_ucase . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

SystemTimeToFileTime . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

WaitMsg . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

WriteBinB . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

WriteBin . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

WriteChar . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

WriteConsoleA . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

WriteConsoleOutputAttribute . . P Near 00000000 FLAT Length= 00000000 External STDCALL

WriteConsoleOutputCharacterA . . P Near 00000000 FLAT Length= 00000000 External STDCALL

WriteDec . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

WriteFile . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

WriteFloat . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

WriteHexB . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

WriteHex . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

WriteInt . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

WriteStackFrameName . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

WriteStackFrame . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

WriteString . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

WriteToFile . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

WriteWindowsMsg . . . . . . . . P Near 00000000 FLAT Length= 00000000 External STDCALL

main . . . . . . . . . . . . . . P Near 00000000 \_TEXT Length= 00000034 Public STDCALL

IsDad . . . . . . . . . . . . L Near 00000017 \_TEXT

IsNud . . . . . . . . . . . . L Near 00000023 \_TEXT

ex . . . . . . . . . . . . . . L Near 0000002D \_TEXT

printf . . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External C

scanf . . . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External C

wsprintfA . . . . . . . . . . . P Near 00000000 FLAT Length= 00000000 External C

Symbols:

N a m e Type Value Attr

@CodeSize . . . . . . . . . . . Number 00000000h

@DataSize . . . . . . . . . . . Number 00000000h

@Interface . . . . . . . . . . . Number 00000003h

@Model . . . . . . . . . . . . . Number 00000007h

@code . . . . . . . . . . . . . Text \_TEXT

@data . . . . . . . . . . . . . Text FLAT

@fardata? . . . . . . . . . . . Text FLAT

@fardata . . . . . . . . . . . . Text FLAT

@stack . . . . . . . . . . . . . Text FLAT

ALT\_MASK . . . . . . . . . . . . Number 00000003h

CAPSLOCK\_ON . . . . . . . . . . Number 00000080h

CREATE\_ALWAYS . . . . . . . . . Number 00000002h

CREATE\_NEW . . . . . . . . . . . Number 00000001h

CTRL\_MASK . . . . . . . . . . . Number 0000000Ch

CreateFile . . . . . . . . . . . Text CreateFileA

DO\_NOT\_SHARE . . . . . . . . . . Number 00000000h

Dad . . . . . . . . . . . . . . Byte 0000002B \_DATA

ENABLE\_ECHO\_INPUT . . . . . . . Number 00000004h

ENABLE\_LINE\_INPUT . . . . . . . Number 00000002h

ENABLE\_MOUSE\_INPUT . . . . . . . Number 00000010h

ENABLE\_PROCESSED\_INPUT . . . . . Number 00000001h

ENABLE\_PROCESSED\_OUTPUT . . . . Number 00000001h

ENABLE\_WINDOW\_INPUT . . . . . . Number 00000008h

ENABLE\_WRAP\_AT\_EOL\_OUTPUT . . . Number 00000002h

ENHANCED\_KEY . . . . . . . . . . Number 00000100h

FALSE . . . . . . . . . . . . . Number 00000000h

FILE\_APPEND\_DATA . . . . . . . . Number 00000004h

FILE\_ATTRIBUTE\_ARCHIVE . . . . . Number 00000020h

FILE\_ATTRIBUTE\_COMPRESSED . . . Number 00000800h

FILE\_ATTRIBUTE\_DEVICE . . . . . Number 00000040h

FILE\_ATTRIBUTE\_DIRECTORY . . . . Number 00000010h

FILE\_ATTRIBUTE\_ENCRYPTED . . . . Number 00004000h

FILE\_ATTRIBUTE\_HIDDEN . . . . . Number 00000002h

FILE\_ATTRIBUTE\_NORMAL . . . . . Number 00000080h

FILE\_ATTRIBUTE\_NOT\_CONTENT\_INDEXED . Number 00002000h

FILE\_ATTRIBUTE\_OFFLINE . . . . . Number 00001000h

FILE\_ATTRIBUTE\_READONLY . . . . Number 00000001h

FILE\_ATTRIBUTE\_REPARSE\_POINT . . Number 00000400h

FILE\_ATTRIBUTE\_SPARSE\_FILE . . . Number 00000200h

FILE\_ATTRIBUTE\_SYSTEM . . . . . Number 00000004h

FILE\_ATTRIBUTE\_TEMPORARY . . . . Number 00000100h

FILE\_BEGIN . . . . . . . . . . . Number 00000000h

FILE\_CURRENT . . . . . . . . . . Number 00000001h

FILE\_DELETE\_CHILD . . . . . . . Number 00000040h

FILE\_END . . . . . . . . . . . . Number 00000002h

FILE\_READ\_DATA . . . . . . . . . Number 00000001h

FILE\_SHARE\_DELETE . . . . . . . Number 00000004h

FILE\_SHARE\_READ . . . . . . . . Number 00000001h

FILE\_SHARE\_WRITE . . . . . . . . Number 00000002h

FILE\_WRITE\_DATA . . . . . . . . Number 00000002h

FOCUS\_EVENT . . . . . . . . . . Number 00000010h

FORMAT\_MESSAGE\_ALLOCATE\_BUFFER . Number 00000100h

FORMAT\_MESSAGE\_FROM\_SYSTEM . . . Number 00001000h

FormatMessage . . . . . . . . . Text FormatMessageA

GENERIC\_ALL . . . . . . . . . . Number 10000000h

GENERIC\_EXECUTE . . . . . . . . Number 20000000h

GENERIC\_READ . . . . . . . . . . Number -80000000h

GENERIC\_WRITE . . . . . . . . . Number 40000000h

GetCommandLine . . . . . . . . . Text GetCommandLineA

HANDLE . . . . . . . . . . . . . Text DWORD

HEAP\_GENERATE\_EXCEPTIONS . . . . Number 00000004h

HEAP\_GROWABLE . . . . . . . . . Number 00000002h

HEAP\_NO\_SERIALIZE . . . . . . . Number 00000001h

HEAP\_REALLOC\_IN\_PLACE\_ONLY . . . Number 00000010h

HEAP\_ZERO\_MEMORY . . . . . . . . Number 00000008h

IDABORT . . . . . . . . . . . . Number 00000003h

IDCANCEL . . . . . . . . . . . . Number 00000002h

IDCLOSE . . . . . . . . . . . . Number 00000008h

IDCONTINUE . . . . . . . . . . . Number 0000000Bh

IDHELP . . . . . . . . . . . . . Number 00000009h

IDIGNORE . . . . . . . . . . . . Number 00000005h

IDNO . . . . . . . . . . . . . . Number 00000007h

IDOK . . . . . . . . . . . . . . Number 00000001h

IDRETRY . . . . . . . . . . . . Number 00000004h

IDTIMEOUT . . . . . . . . . . . Number 00007D00h

IDTRYAGAIN . . . . . . . . . . . Number 0000000Ah

IDYES . . . . . . . . . . . . . Number 00000006h

INVALID\_HANDLE\_VALUE . . . . . . Number -00000001h

KBDOWN\_FLAG . . . . . . . . . . Number 00000001h

KEY\_EVENT . . . . . . . . . . . Number 00000001h

KEY\_MASKS . . . . . . . . . . . Number 0000001Fh

LEFT\_ALT\_PRESSED . . . . . . . . Number 00000002h

LEFT\_CTRL\_PRESSED . . . . . . . Number 00000008h

MB\_ABORTRETRYIGNORE . . . . . . Number 00000002h

MB\_APPLMODAL . . . . . . . . . . Number 00000000h

MB\_CANCELTRYCONTINUE . . . . . . Number 00000006h

MB\_DEFBUTTON1 . . . . . . . . . Number 00000000h

MB\_DEFBUTTON2 . . . . . . . . . Number 00000100h

MB\_DEFBUTTON3 . . . . . . . . . Number 00000200h

MB\_DEFBUTTON4 . . . . . . . . . Number 00000300h

MB\_HELP . . . . . . . . . . . . Number 00004000h

MB\_ICONASTERISK . . . . . . . . Number 00000040h

MB\_ICONERROR . . . . . . . . . . Number 00000010h

MB\_ICONEXCLAMATION . . . . . . . Number 00000030h

MB\_ICONHAND . . . . . . . . . . Number 00000010h

MB\_ICONINFORMATION . . . . . . . Number 00000040h

MB\_ICONQUESTION . . . . . . . . Number 00000020h

MB\_ICONSTOP . . . . . . . . . . Number 00000010h

MB\_ICONWARNING . . . . . . . . . Number 00000030h

MB\_OKCANCEL . . . . . . . . . . Number 00000001h

MB\_OK . . . . . . . . . . . . . Number 00000000h

MB\_RETRYCANCEL . . . . . . . . . Number 00000005h

MB\_SYSTEMMODAL . . . . . . . . . Number 00001000h

MB\_TASKMODAL . . . . . . . . . . Number 00002000h

MB\_USERICON . . . . . . . . . . Number 00000080h

MB\_YESNOCANCEL . . . . . . . . . Number 00000003h

MB\_YESNO . . . . . . . . . . . . Number 00000004h

MENU\_EVENT . . . . . . . . . . . Number 00000008h

MOUSE\_EVENT . . . . . . . . . . Number 00000002h

MessageBox . . . . . . . . . . . Text MessageBoxA

NULL . . . . . . . . . . . . . . Number 00000000h

NUMLOCK\_ON . . . . . . . . . . . Number 00000020h

Nud . . . . . . . . . . . . . . Byte 0000003B \_DATA

OPEN\_ALWAYS . . . . . . . . . . Number 00000004h

OPEN\_EXISTING . . . . . . . . . Number 00000003h

PeekConsoleInput . . . . . . . . Text PeekConsoleInputA

Promt . . . . . . . . . . . . . Byte 00000000 \_DATA

RIGHT\_ALT\_PRESSED . . . . . . . Number 00000001h

RIGHT\_CTRL\_PRESSED . . . . . . . Number 00000004h

ReadConsoleInput . . . . . . . . Text ReadConsoleInputA

ReadConsole . . . . . . . . . . Text ReadConsoleA

SCROLLLOCK\_ON . . . . . . . . . Number 00000040h

SHIFT\_MASK . . . . . . . . . . . Number 00000010h

SHIFT\_PRESSED . . . . . . . . . Number 00000010h

STD\_ERROR\_HANDLE . . . . . . . . Number -0000000Ch

STD\_INPUT\_HANDLE . . . . . . . . Number -0000000Ah

STD\_OUTPUT\_HANDLE . . . . . . . Number -0000000Bh

SetConsoleTitle . . . . . . . . Text SetConsoleTitleA

TAB . . . . . . . . . . . . . . Number 00000009h

TRUE . . . . . . . . . . . . . . Number 00000001h

TRUNCATE\_EXISTING . . . . . . . Number 00000005h

VK\_11 . . . . . . . . . . . . . Number 000000BDh

VK\_12 . . . . . . . . . . . . . Number 000000BBh

VK\_ADD . . . . . . . . . . . . . Number 0000006Bh

VK\_BACK . . . . . . . . . . . . Number 00000008h

VK\_CANCEL . . . . . . . . . . . Number 00000003h

VK\_CAPITAL . . . . . . . . . . . Number 00000014h

VK\_CLEAR . . . . . . . . . . . . Number 0000000Ch

VK\_CONTROL . . . . . . . . . . . Number 00000011h

VK\_DECIMAL . . . . . . . . . . . Number 0000006Eh

VK\_DELETE . . . . . . . . . . . Number 0000002Eh

VK\_DIVIDE . . . . . . . . . . . Number 0000006Fh

VK\_DOWN . . . . . . . . . . . . Number 00000028h

VK\_END . . . . . . . . . . . . . Number 00000023h

VK\_ESCAPE . . . . . . . . . . . Number 0000001Bh

VK\_EXECUTE . . . . . . . . . . . Number 0000002Bh

VK\_F10 . . . . . . . . . . . . . Number 00000079h

VK\_F11 . . . . . . . . . . . . . Number 0000007Ah

VK\_F12 . . . . . . . . . . . . . Number 0000007Bh

VK\_F13 . . . . . . . . . . . . . Number 0000007Ch

VK\_F14 . . . . . . . . . . . . . Number 0000007Dh

VK\_F15 . . . . . . . . . . . . . Number 0000007Eh

VK\_F16 . . . . . . . . . . . . . Number 0000007Fh

VK\_F17 . . . . . . . . . . . . . Number 00000080h

VK\_F18 . . . . . . . . . . . . . Number 00000081h

VK\_F19 . . . . . . . . . . . . . Number 00000082h

VK\_F1 . . . . . . . . . . . . . Number 00000070h

VK\_F20 . . . . . . . . . . . . . Number 00000083h

VK\_F21 . . . . . . . . . . . . . Number 00000084h

VK\_F22 . . . . . . . . . . . . . Number 00000085h

VK\_F23 . . . . . . . . . . . . . Number 00000086h

VK\_F24 . . . . . . . . . . . . . Number 00000087h

VK\_F2 . . . . . . . . . . . . . Number 00000071h

VK\_F3 . . . . . . . . . . . . . Number 00000072h

VK\_F4 . . . . . . . . . . . . . Number 00000073h

VK\_F5 . . . . . . . . . . . . . Number 00000074h

VK\_F6 . . . . . . . . . . . . . Number 00000075h

VK\_F7 . . . . . . . . . . . . . Number 00000076h

VK\_F8 . . . . . . . . . . . . . Number 00000077h

VK\_F9 . . . . . . . . . . . . . Number 00000078h

VK\_HELP . . . . . . . . . . . . Number 0000002Fh

VK\_HOME . . . . . . . . . . . . Number 00000024h

VK\_INSERT . . . . . . . . . . . Number 0000002Dh

VK\_LBUTTON . . . . . . . . . . . Number 00000001h

VK\_LCONTROL . . . . . . . . . . Number 000000A2h

VK\_LEFT . . . . . . . . . . . . Number 00000025h

VK\_LMENU . . . . . . . . . . . . Number 000000A4h

VK\_LSHIFT . . . . . . . . . . . Number 000000A0h

VK\_MENU . . . . . . . . . . . . Number 00000012h

VK\_MULTIPLY . . . . . . . . . . Number 0000006Ah

VK\_NEXT . . . . . . . . . . . . Number 00000022h

VK\_NUMLOCK . . . . . . . . . . . Number 00000090h

VK\_NUMPAD0 . . . . . . . . . . . Number 00000060h

VK\_NUMPAD1 . . . . . . . . . . . Number 00000061h

VK\_NUMPAD2 . . . . . . . . . . . Number 00000062h

VK\_NUMPAD3 . . . . . . . . . . . Number 00000063h

VK\_NUMPAD4 . . . . . . . . . . . Number 00000064h

VK\_NUMPAD5 . . . . . . . . . . . Number 00000065h

VK\_NUMPAD6 . . . . . . . . . . . Number 00000066h

VK\_NUMPAD7 . . . . . . . . . . . Number 00000067h

VK\_NUMPAD8 . . . . . . . . . . . Number 00000068h

VK\_NUMPAD9 . . . . . . . . . . . Number 00000069h

VK\_PAUSE . . . . . . . . . . . . Number 00000013h

VK\_PRINT . . . . . . . . . . . . Number 0000002Ah

VK\_PRIOR . . . . . . . . . . . . Number 00000021h

VK\_RBUTTON . . . . . . . . . . . Number 00000002h

VK\_RCONTROL . . . . . . . . . . Number 000000A3h

VK\_RETURN . . . . . . . . . . . Number 0000000Dh

VK\_RIGHT . . . . . . . . . . . . Number 00000027h

VK\_RMENU . . . . . . . . . . . . Number 000000A5h

VK\_RSHIFT . . . . . . . . . . . Number 000000A1h

VK\_SCROLL . . . . . . . . . . . Number 00000091h

VK\_SEPARATER . . . . . . . . . . Number 0000006Ch

VK\_SHIFT . . . . . . . . . . . . Number 00000010h

VK\_SNAPSHOT . . . . . . . . . . Number 0000002Ch

VK\_SPACE . . . . . . . . . . . . Number 00000020h

VK\_SUBTRACT . . . . . . . . . . Number 0000006Dh

VK\_TAB . . . . . . . . . . . . . Number 00000009h

VK\_UP . . . . . . . . . . . . . Number 00000026h

WINDOW\_BUFFER\_SIZE\_EVENT . . . . Number 00000004h

WriteConsoleOutputCharacter . . Text WriteConsoleOutputCharacterA

WriteConsole . . . . . . . . . . Text WriteConsoleA

black . . . . . . . . . . . . . Number 00000000h

blue . . . . . . . . . . . . . . Number 00000001h

brown . . . . . . . . . . . . . Number 00000006h

cyan . . . . . . . . . . . . . . Number 00000003h

exit . . . . . . . . . . . . . . Text INVOKE ExitProcess,0

gray . . . . . . . . . . . . . . Number 00000008h

green . . . . . . . . . . . . . Number 00000002h

lightBlue . . . . . . . . . . . Number 00000009h

lightCyan . . . . . . . . . . . Number 0000000Bh

lightGray . . . . . . . . . . . Number 00000007h

lightGreen . . . . . . . . . . . Number 0000000Ah

lightMagenta . . . . . . . . . . Number 0000000Dh

lightRed . . . . . . . . . . . . Number 0000000Ch

magenta . . . . . . . . . . . . Number 00000005h

red . . . . . . . . . . . . . . Number 00000004h

white . . . . . . . . . . . . . Number 0000000Fh

wsprintf . . . . . . . . . . . . Text wsprintfA

yellow . . . . . . . . . . . . . Number 0000000Eh

0 Warnings

0 Errors

1. **Testare programului pe 32biți**
2. **Codul sursa (.asm) pe 64 biți**

; AddTwoSum\_64.asm - Chapter 3 example.

ExitProcess proto

.data

sum qword 0

.code

main proc

mov rax,5

add rax,6

mov sum,rax

mov ecx,0

call ExitProcess

main endp

end

1. **Listingul datelor pe 64 biți**

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; AddTwoSum\_64.asm - Chapter 3 example.

ExitProcess proto

00000000 .data

00000000 sum qword 0

0000000000000000

00000000 .code

00000000 main proc

00000000 48/ C7 C0 mov rax,5

00000005

00000007 48/ 83 C0 06 add rax,6

0000000B 48/ 89 05 mov sum,rax

00000000 R

00000012 B9 00000000 mov ecx,0

00000017 E8 00000000 E call ExitProcess

0000001C main endp

end

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x64.asm Symbols 2 - 1

Procedures, parameters, and locals:

N a m e Type Value Attr

ExitProcess . . . . . . . . . . P 00000000 Length= 00000000 External

main . . . . . . . . . . . . . . P 00000000 \_TEXT Length= 0000001C Public

Symbols:

N a m e Type Value Attr

sum . . . . . . . . . . . . . . QWord 00000000 \_DATA

0 Warnings

0 Errors

1. **Testare programului pe 64 biți**
2. **Concluzii**