



**Note:** This library for DOS/Win16 personality only. Use [Family API](#) for portability.

**Note:** [osFree Macro Library](#) provides macros for most of functions

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# osFree Macro Library

## Introduction

ALP/MASM compatible macro library for BIOS and DOS. Original MASM provides macros for BIOS and DOS interrupts as well as OS/2 and Windows macros. osFree Macro Library is a open source replacement of MASM macros. osFree macro library is for Microsoft MASM, IBM MASM, IBM ALP, JWASM and other MASM compatible assemblers. It has more type check and some BIOS bugs workaround. At the present time BIOS and DOS APIs are supported.

This library based on IBM 5150 Technical Reference #6322507 of Apr 1984, MACRO.DOC from MASM 5.x, Ralf Brown Interrupt list.

Functions, found in later BIOSes mostly not covered, but can be added in future. Main goal of osFree Macro Library is to provide support for Family API development. Macro names mostly constructed from MASM 5.x, MASM 6.x and ALP documentation.

## Using macros

osFree Macro Library consist of BIOS.INC, MOUSE.INC, DPML.INC and DOS.INC. To use macros just include BIOS.INC, DOS.INC, MOUSE.INC, DPML.INC or all. For example:

```
INCLUDE BIOS.INC

@SetPage          ; Set default video page (zero page)
```

## Files

osFree Macro Library provides four include files:

- BIOS.INC
- DOS.INC
- MOUSE.INC
- DPML.INC
- MACROS.INC

MACROS.INC contains generic macros. BIOS.INC contains macros for BIOS interrupts. DOS.INC contains macros for DOS interrupts. MOUSE.INC contains macros for MOUSE interrupts. DPMI.INC contains macros for DPMI interrupts.

## MACROS.INC

| Macro                        | Description |
|------------------------------|-------------|
| <a href="#">@ArgCount</a>    |             |
| <a href="#">@Argl</a>        |             |
| <a href="#">@ArgRev</a>      |             |
| <a href="#">@PopAll</a>      |             |
| <a href="#">@PushAll</a>     |             |
| <a href="#">@RestoreRegs</a> |             |
| <a href="#">@SaveRegs</a>    |             |
| <a href="#">echof</a>        |             |
| <a href="#">pushc</a>        |             |

## BIOS.INC

| Macro                                 | Description                        |
|---------------------------------------|------------------------------------|
| <a href="#">@SetMode</a>              | Set current video mode             |
| <a href="#">@SetCurSz/@SetCsrSize</a> | Set cursor size                    |
| <a href="#">@SetCurPos/@SetCsrPos</a> | Set cursor position                |
| <a href="#">@GetCur/@GetCsr</a>       | Get cursor shape and position      |
| <a href="#">@SetPage</a>              | Set active video page              |
| <a href="#">@ScrollUp</a>             | Scroll screen area up              |
| <a href="#">@ScrollDn</a>             | Scroll screen area down            |
| <a href="#">@Scroll</a>               | Scroll sreen area up or down       |
| <a href="#">@GetChAtr</a>             | Get char and attribute from screen |
| <a href="#">@PutChAtr</a>             | Put char and attribute to screen   |
| <a href="#">@PutCh</a>                | Put char to screen                 |
| <a href="#">@SetPalet</a>             | Set pallete                        |
| <a href="#">@SetColor</a>             | Set border color                   |
| <a href="#">@SetDot</a>               | Set pixel dot on screen            |
| <a href="#">@GetDot</a>               | Get pixel dot from screen          |
| <a href="#">@WrtTTY</a>               | Write char in TTY mode             |
| <a href="#">@VideoState</a>           | Get video state                    |
| <a href="#">@GetMode</a>              | Get video mode                     |
| <a href="#">@GetDisplay</a>           | Get display info                   |
| <a href="#">@GetVideoState</a>        | Get extended video state           |
| <a href="#">@GetEGAInfo</a>           | Get EGA information                |
| <a href="#">@Cls</a>                  | Clear screen                       |
| <a href="#">@AuxInit</a>              | Initialize serial port             |
| <a href="#">@AuxSendChar</a>          | Send char to serial port           |
| <a href="#">@AuxRecieveChar</a>       | Recieve char from serial port      |
| <a href="#">@AuxStatus</a>            | Get serial port status             |
| <a href="#">@PrnPrint</a>             | Print char to printer              |

| Macro      | Description                    |
|------------|--------------------------------|
| @PrnInit   | Initialize printer             |
| @PrnStatus | Get printer status             |
| @KbdStatus | Get keyboard status            |
| @CharIn    | Input char from keyboard       |
| @CharPeek  | Peek char from keyboard buffer |
| @SetTime   | Set time tick                  |
| @GetTime   | Get time tick                  |
| @TapeOn    | Turn tape motor on             |
| @TapeOff   | Turn tape motor off            |
| @TapeRead  | Read block from tape           |
| @TapeWrite | Write block to tape            |
| @Equipment | Get equipment list             |
| @MemSize   | Get memory size                |
| @DskReset  | Reset disk system              |
| @DskStatus | Get last disk operation status |
| @DskRead   | Read sector                    |
| @DskWrite  | Write sector                   |
| @DskVerify | Verify sector                  |
| @DskFormat | Format track                   |

## DOS.INC

| Macro              | Description |
|--------------------|-------------|
| TERMINATE          |             |
| FLUSH              |             |
| FILE_UNLOCK        |             |
| ABS_DISK_READ      |             |
| ABS_DISK_WRITE     |             |
| STAY_RESIDENT      |             |
| TERMINATE_PROGRAM  |             |
| READ_KBD_AND_ECHO  |             |
| DISPLAY_CHAR       |             |
| @DispCh            |             |
| AUX_INPUT          |             |
| AUX_OUTPUT         |             |
| PRINT_CHAR         |             |
| @PrtCh             |             |
| DIR_CONSOLE_IO     |             |
| DIR_CONSOLE_INPUT  |             |
| READ_KBD           |             |
| DISPLAY            |             |
| @DispStr           |             |
| GET_STRING         |             |
| @GetStr            |             |
| CHECK_KBD_STATUS   |             |
| FLUSH_AND_READ_KBD |             |

| Macro               | Description |
|---------------------|-------------|
| RESET_DISK          |             |
| LFN_RESET_DISK      |             |
| SELECT_DISK         |             |
| @SetDrv             |             |
| OPEN                |             |
| CLOSE               |             |
| SEARCH_FIRST        |             |
| SEARCH_NEXT         |             |
| DELETE              |             |
| READ_SEQ            |             |
| WRITE_SEQ           |             |
| CREATE              |             |
| RENAME              |             |
| CURRENT_DISK        |             |
| @GetDrv             |             |
| SET_DTA             |             |
| @SetDTA             |             |
| DEF_DRIVE_DATA      |             |
| DRIVE_DATA          |             |
| READ_RAN            |             |
| WRITE_RAN           |             |
| FILE_SIZE           |             |
| SET_RELATIVE_RECORD |             |
| SET_VECTOR          |             |
| @SetInt             |             |
| CREATE_PSP          |             |
| RAN_BLOCK_READ      |             |
| RAN_BLOCK_WRITE     |             |
| PARSE               |             |
| GET_DATE            |             |
| @GetDate            |             |
| SET_DATE            |             |
| @SetDate            |             |
| GET_TIME            |             |
| @GetTime            |             |
| SET_TIME            |             |
| @SetTime            |             |
| VERIFY              |             |
| GET_DTA             |             |
| @GetDTA             |             |
| GET_VERSION         |             |
| @GetVer             |             |
| KEEP_PROCESS        |             |
| @TSR                |             |
| CTRL_C_CHK          |             |

| Macro                 | Description |
|-----------------------|-------------|
| GET_VECTOR            |             |
| @GetInt               |             |
| GET_DISK_SPACE        |             |
| @ChkDrv               |             |
| GET_COUNTRY           |             |
| GET_UPPERCASE_TABLE   |             |
| SET_COUNTRY           |             |
| MAKE_DIR              |             |
| @MkDir                |             |
| LFN_MAKE_DIR          |             |
| REM_DIR               |             |
| @RmDir                |             |
| LFN_REM_DIR           |             |
| CHANGE_DIR            |             |
| @ChDir                |             |
| LFN_CHANGE_DIR        |             |
| CREATE_HANDLE         |             |
| @MakFil               |             |
| OPEN_HANDLE           |             |
| @OpenFil              |             |
| CLOSE_HANDLE          |             |
| @ClosFil              |             |
| READ_HANDLE           |             |
| @Read                 |             |
| WRITE_HANDLE          |             |
| @Write                |             |
| DELETE_ENTRY          |             |
| @DelFil               |             |
| LFN_DELETE_ENTRY      |             |
| MOVE_PTR              |             |
| @MovePtrAbs           |             |
| @MovePtrRel           |             |
| @GetFilSz             |             |
| CHANGE_MODE           |             |
| LFN_CHANGE_MODE       |             |
| IOCTL_DATA            |             |
| IOCTL_CHAR            |             |
| IOCTL_STATUS          |             |
| IOCTL_STATUS          |             |
| IOCTL_CHANGE          |             |
| IOCTL_RBLOCK          |             |
| IOCTL_RHANDLE         |             |
| IOCTL_RETRY           |             |
| GENERIC_IOCTL_HANDLES |             |
| GENERIC_IOCTL_BLOCK   |             |

| Macro               | Description           |
|---------------------|-----------------------|
| IOCTL_GET_DRIVE_MAP |                       |
| IOCTL_SET_DRIVE_MAP |                       |
| XDUP                |                       |
| XDUP2               |                       |
| GET_DIR             |                       |
| @GetDir             |                       |
| ALLOCATE_MEMORY     |                       |
| @GetBlok            |                       |
| FREE_MEMORY         |                       |
| @FreeBlok           |                       |
| SET_BLOCK           | Set memory block size |
| @ModBlok            | Modify memory block   |
| EXEC                |                       |
| EXEC_OVL            |                       |
| @Exec               |                       |
| @Exit               |                       |
| END_PROCESS         |                       |
| RET_CODE            |                       |
| @GetRet             |                       |
| FIND_FIRST_FILE     |                       |
| @GetFirst           |                       |
| FIND_NEXT_FILE      |                       |
| @GetNext            |                       |
| GET_VERIFY          |                       |
| RENAME_FILE         |                       |
| @MoveFil            |                       |
| LFN_RENAME_FILE     |                       |
| GET_SET_DATE_TIME   |                       |
| ALLOC_STRAT         |                       |
| GET_ERROR           |                       |
| CREATE_TEMP         |                       |
| CREATE_NEW          |                       |
| LOCK_FILE           |                       |
| UNLOCK              |                       |
| GET_MACHINE_NAME    |                       |
| PRINTER_SETUP       |                       |
| GET_LIST            |                       |
| REDIR               |                       |
| CANCEL_REDIR        |                       |
| GET_PSP             |                       |
| DISPLAY_ASCIZ       |                       |
| MOVE_STRING         |                       |
| CONVERT             |                       |
| CONVERT_TO_BINARY   |                       |
| CONVERT_DATE        |                       |

| Macro                     | Description |
|---------------------------|-------------|
| <a href="#">PACK_DATE</a> |             |
| <a href="#">@GetKey</a>   |             |

## MOUSE.INC

| Macro                           | Description                  |
|---------------------------------|------------------------------|
| <a href="#">@MouInit</a>        | Init driver                  |
| <a href="#">@MouShowPointer</a> | Show Mouse Cursor            |
| <a href="#">@MouStatus</a>      | Mouse Cursor Status          |
| <a href="#">@MouSetPos</a>      | Set Mouse Cursor Position    |
| <a href="#">@MouSetMickey</a>   | Set Mouse Mickey/Pixel ratio |
| <a href="#">@MouRegion</a>      | Mouse Cursor Region          |

## DPMI.INC

| Macro                                 | Description |
|---------------------------------------|-------------|
| <a href="#">@DPMI_AllocDesc</a>       |             |
| <a href="#">@DPMI_FreeDesc</a>        |             |
| <a href="#">@DPMI_Seg2Desc</a>        |             |
| <a href="#">@DPMI_GetIncValue</a>     |             |
| <a href="#">@DPMI_LockSel</a>         |             |
| <a href="#">@DPMI_UnlockSel</a>       |             |
| <a href="#">@DPMI_GetBase</a>         |             |
| <a href="#">@DPMI_SetBase</a>         |             |
| <a href="#">@DPMI_SetLimit</a>        |             |
| <a href="#">@DPMI_SetAccRights</a>    |             |
| <a href="#">@DPMI_CreateCSAlias</a>   |             |
| <a href="#">@DPMI_GetDescriptor</a>   |             |
| <a href="#">@DPMI_SetDescriptor</a>   |             |
| <a href="#">@DPMI_DOSALLOC</a>        |             |
| <a href="#">@DPMI_DOSFREE</a>         |             |
| <a href="#">@DPMI_GetRMIntVec</a>     |             |
| <a href="#">@DPMI_SetRMIntVec</a>     |             |
| <a href="#">@DPMI_GetExcVec</a>       |             |
| <a href="#">@DPMI_SetExcVec</a>       |             |
| <a href="#">@DPMI_GetPMIntVec</a>     |             |
| <a href="#">@DPMI_SetPMIntVec</a>     |             |
| <a href="#">@DPMI_SimRMInt</a>        |             |
| <a href="#">@DPMI_CallRMFarProc</a>   |             |
| <a href="#">@DPMI_CallRMIRProc</a>    |             |
| <a href="#">@DPMI_AllocRMCallback</a> |             |
| <a href="#">@DPMI_FreeRMCallback</a>  |             |
| <a href="#">@DPMI_GETRMSA</a>         |             |
| <a href="#">@DPMI_GETVERSION</a>      |             |
| <a href="#">@DPMI_GETFREEMEMINFO</a>  |             |
| <a href="#">@DPMI_ALLOCMEM</a>        |             |

| Macro                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#">@DPMI_FREEMEM</a>     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <a href="#">@DPMI_GETPAGESIZE</a> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <a href="#">@DPMI_MAPPHYS</a>     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>IBM PC BIOS API</b>            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Video I/O                         | <a href="#">INT 10H</a> : <a href="#">00H</a> , <a href="#">01H</a> , <a href="#">02H</a> , <a href="#">03H</a> , <a href="#">05H</a> , <a href="#">06H</a> , <a href="#">07H</a> , <a href="#">08H</a> , <a href="#">09H</a> , <a href="#">0AH</a> , <a href="#">0BH</a> , <a href="#">0CH</a> , <a href="#">0DH</a> , <a href="#">0EH</a> , <a href="#">0FH</a>                                                                                                                                                                                                                  |
| Hardware info                     | <a href="#">INT 11H</a> , <a href="#">INT 12H</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Serial I/O                        | <a href="#">INT 14H</a> : <a href="#">00H</a> , <a href="#">01H</a> , <a href="#">02H</a> , <a href="#">03H</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Tape I/O                          | <a href="#">INT 15H</a> : <a href="#">00H</a> , <a href="#">01H</a> , <a href="#">02H</a> , <a href="#">03H</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Keyboard I/O                      | <a href="#">INT 16H</a> : <a href="#">00H</a> , <a href="#">01H</a> , <a href="#">02H</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Printer I/O                       | <a href="#">INT 17H</a> : <a href="#">00H</a> , <a href="#">01H</a> , <a href="#">02H</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Disk I/O                          | <a href="#">INT 13H</a> : <a href="#">00H</a> , <a href="#">01H</a> , <a href="#">02H</a> , <a href="#">03H</a> , <a href="#">04H</a> , <a href="#">05H</a>                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Date and Time                     | <a href="#">INT 1AH</a> : <a href="#">00H</a> , <a href="#">01H</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>osFree Macro Library</b>       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Video I/O                         | <a href="#">@SetMode</a> <a href="#">@SetCurSz</a> <a href="#">@SetCurPos</a> <a href="#">@GetCur</a> <a href="#">@SetPage</a> <a href="#">@ScrollUp</a> <a href="#">@ScrollDn</a> <a href="#">@Scroll</a> <a href="#">@GetChAtr</a> <a href="#">@PutChAtr</a> <a href="#">@PutCh</a> <a href="#">@SetPalet</a> <a href="#">@SetColor</a> <a href="#">@SetDot</a> <a href="#">@GetDot</a> <a href="#">@WrtTTY</a> <a href="#">@VideoState</a> <a href="#">@GetMode</a> <a href="#">@GetDisplay</a> <a href="#">@GetVideoState</a> <a href="#">@GetEGAInfo</a> <a href="#">@Cls</a> |
| Hardware info                     | <a href="#">@Equipment</a> <a href="#">@MemSize</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Serial I/O                        | <a href="#">@AuxInit</a> <a href="#">@AuxSendChar</a> <a href="#">@AuxRecieveChar</a> <a href="#">@AuxStatus</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Tape I/O                          | <a href="#">@TapeOn</a> <a href="#">@TapeOff</a> <a href="#">@TapeRead</a> <a href="#">@TapeWrite</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Keyboard I/O                      | <a href="#">@KbdStatus</a> <a href="#">@CharIn</a> <a href="#">@CharPeek</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Printer I/O                       | <a href="#">@PrnPrint</a> <a href="#">@PrnInit</a> <a href="#">@PrnStatus</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Disk I/O                          | <a href="#">@DskReset</a> <a href="#">@DskStatus</a> <a href="#">@DskRead</a> <a href="#">@DskWrite</a> <a href="#">@DskVerify</a> <a href="#">@DskFormat</a>                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Date and Time                     | <a href="#">@SetTime</a> <a href="#">@GetTime</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Mouse                             | <a href="#">@MouInit</a> <a href="#">@MouShowPointer</a> <a href="#">@MouStatus</a> <a href="#">@MouSetPos</a> <a href="#">@MouSetMickey</a> <a href="#">@MouRegion</a>                                                                                                                                                                                                                                                                                                                                                                                                            |
| Memory manager                    | <a href="#">@ModBlok</a> <a href="#">SET_BLOCK</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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