**Note: This IBM PC BIOS API call is for DOS/Win16 personality only. Use Family API for portability.**

**Note: osFree Macro Library provides macros for most of functions**

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# Int 10H, AH=09H

## Version

IBM 5150 and higher

## Brief

Print character and attribute at cursor position

## osFree Macro Library

@PutCh@PutChar

## Family API

VioWrtNCell VioWrtNAttr VioWrtNChar

## Parameters

- AH = 09h
- AL = character to display
- BH = page number (00h to number of pages - 1) (see #00010) background color in 256-color graphics modes (ET4000)
- BL = attribute (PCjr, Tandy 1000 only) or color (graphics mode) if bit 7 set in <256-color graphics mode, character is XOR'ed onto screen
- CX = number of times to write character

## Return

## Macro

```
INCLUDE BIOS.INC

@PutCh 'A', 7, 0, 5
```

## Notes

- all characters are displayed, including CR, LF, and BS
- replication count in CX may produce an unpredictable result in graphics modes if it is greater than the number of positions remaining in the current row
- With PhysTechSoft's PTS ROM-DOS the BH, BL, and CX values are ignored on entry.
- Text based on Ralf Brown Interrupt List Release 61

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

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| **Family API** | | |
|---|---|---|
| DOS | Process Manager | DosBeep DosExit DosSleep DosExecPgm |
| | File Manager | DosChDir DosChgFilePtr DosClose DosDelete DosDupHandle DosMkDir DosMove DosQCurDir DosQCurDisk DosSetFileMode DosOpen DosQFileInfo DosRead DosQFileMode DosQFSInfo DosQVerify DosRmDir DosSelectDisk DosFindClose DosFindFirst DosFindNext DosSetFileInfo DosSetVerify DosWrite DosFileLocks DosSetFHandState DosNewSize DosBufReset DosQFHandState DosSetFSinfo |
| | Memory Manager | DosFreeSeg DosSubAlloc DosSubFree DosSubSet DosAllocHuge DosAllocSeg DosReallocHuge DosReallocSeg DosGetHugeShift DosCreateCSAlias |
| | NLS | DosCaseMap DosGetCtryInfo DosGetDBCSEv DosSetCtryCode DosGetCollate DosGetMessage DosInsMessage DosPutMessage |
| | Date and Time | DosSetDateTime DosGetDateTime |
| | Devices | DosDevConfig DosDevIOCtl DosDevIOCtl2 |
| | Signals | DosHoldSignal DosSetSigHandler |
| | Misc | BadDynLink DosGetEnv DosGetMachineMode DosGetVersion DosError DosErrClass DosSetVec |
| KBD | | KbdCharIn KbdFlushBuffer KbdGetStatus KbdSetStatus KbdStringIn KbdPeek |
| VIO | | VioGetBuf VioGetConfig VioGetCurPos VioGetCurType VioGetPhysBuf VioReadCellStr VioReadCharStr VioScrollUp VioScrollDn VioScrollLf VioScrollRt VioScrUnLock VioSetCurPos VioSetCurType VioSetMode VioGetMode VioShowBuf VioWrtCellStr VioWrtCharStr VioWrtCharStrAtt VioWrtNAttr VioWrtNCell VioWrtNChar VioWrtTTY VioScrLock VioPopUp |
| Tools | | BIND |
| Modules | | DOSCALLS.DLL VIOCALLS.DLL KBDCALLS.DLL MSG.DLL |
| Libraries | | API.LIB OS2386.LIB FAPI.LIB DOSCALLS.LIB SUBCALLS.LIB |

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