



**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](#)

<b>IBM PC BIOS API</b>	
Video I/O	<a href="#">INT 10H</a> : 00H, 01H, 02H, 03H, 05H, 06H, 07H, 08H, 09H, 0AH, 0BH, 0CH, 0DH, 0EH, 0FH
Hardware info	<a href="#">INT 11H</a> , <a href="#">INT 12H</a>
Serial I/O	<a href="#">INT 14H</a> : 00H, 01H, 02H, 03H
Tape I/O	<a href="#">INT 15H</a> : 00H, 01H, 02H, 03H
Keyboard I/O	<a href="#">INT 16H</a> : 00H, 01H, 02H
Printer I/O	<a href="#">INT 17H</a> : 00H, 01H, 02H
Disk I/O	<a href="#">INT 13H</a> : 00H, 01H, 02H, 03H, 04H, 05H
Date and Time	<a href="#">INT 1AH</a> : 00H, 01H
<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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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 DosShutdown
	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 DosDevIOct1 DosDevIOct2
	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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