

CHIP-16 Debugger

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DOSBox 0.74-3, Cpu speed: max 100% cycles, Frameskip 0, Program: DBUG16
CHIP-16 Debugger (09 Nov 2019)

U00=03 U01=1F U02=00 U03=00 U04=00 U05=09 U06=00 U07=00    012B 91 00 1D 0E > MOVE MLO = #0E1D
U08=00 U09=00 U0A=00 U0B=00 U0C=00 U0D=00 U0E=00 U0F=00    012F 02 00 11 0A > GSUB #0A11
U10=00 U11=00 U12=00 U13=06 U14=00 U15=00 U16=00 U17=00    0133 91 00 DE 0A > MOVE MLO = #0ADE
U18=00 U19=00 U1A=00 U1B=00 U1C=00 U1D=00 U1E=00 U1F=00
U20=00 U21=00 U22=00 U23=00 U24=00 U25=00 U26=00 U27=00    Break At: FFFF
U28=00 U29=00 U2A=00 U2B=00 U2C=00 U2D=00 U2E=00 U2F=00    Fast Mode: OFF
U30=00 U31=00 U32=00 U33=00 U34=00 U35=00 U36=00 U37=00    Show virtual screen ON S-> 8
U38=00 U39=00 U3A=00 U3B=00 U3C=00 U3D=00 U3E=00 U3F=00
U40=00 U41=00 U42=00 U43=00 U44=00 U45=00 U46=00 U47=00
U48=00 U49=00 U4A=00 U4B=00 U4C=00 U4D=00 U4E=00 U4F=00
U50=00 U51=00 U52=00 U53=00 U54=00 U55=00 U56=00 U57=00
U58=00 U59=00 U5A=00 U5B=00 U5C=00 U5D=00 U5E=00 U5F=00
U60=00 U61=00 U62=00 U63=00 U64=00 U65=00 U66=00 U67=00
U68=00 U69=00 U6A=00 U6B=00 U6C=00 U6D=00 U6E=00 U6F=00
U70=00 U71=00 U72=00 U73=00 U74=00 U75=00 U76=00 U77=00
U78=00 U79=00 U7A=00 U7B=00 U7C=00 U7D=00 U7E=00 U7F=00

R00=0000 R01=0000 R02=0000 R03=0000 R04=0000 R05=0000 R06=0000 R07=0000    ASCII[MP0]=1 = DrawRectang
R08=0000 R09=0000 R0A=0000 R0B=0000 R0C=0000 R0D=0000 R0E=0000 R0F=0000    ASCII[MP1]=0 UWA↑↑ 箭↑↑
R10=0000 R11=0000 R12=0000 R13=0000 R14=0000 R15=0000 R16=0000 R17=0000    ASCII[MP2]=0 UWA↑↑ 箭↑↑
R18=0000 R19=0000 R1A=0000 R1B=0000 R1C=0000 R1D=0000 R1E=0000 R1F=0000    ASCII[MP3]=0 UWA↑↑ 箭↑↑
R20=0000 R21=0000 R22=0000 R23=0000 R24=0000 R25=0000 R26=0000 R27=0000    ASCII[MP4]=0 UWA↑↑ 箭↑↑
R28=0000 R29=0000 R2A=0000 R2B=0000 R2C=0000 R2D=0000 R2E=0000 R2F=0000    ASCII[MP5]=0 UWA↑↑ 箭↑↑
R30=0000 R31=0000 R32=0000 R33=0000 R34=0000 R35=0000 R36=0000 R37=0000    ASCII[MP6]=0 UWA↑↑ 箭↑↑
R38=0000 R39=0000 R3A=0000 R3B=0000 R3C=0000 R3D=0000 R3E=0000 R3F=0000    ASCII[MP7]=0 UWA↑↑ 箭↑↑
R40=0037 R41=0037 R42=0000 R43=0000 R44=0000 R45=0000 R46=0000 R47=0000    ASCII[MP8]=0 UWA↑↑ 箭↑↑
R48=0000 R49=0000 R4A=0000 R4B=0000 R4C=0000 R4D=0000 R4E=0000 R4F=0000    ASCII[MP9]=0 UWA↑↑ 箭↑↑
R50=0000 R51=0000 R52=0000 R53=0000 R54=0000 R55=0000 R56=0000 R57=0000    ASCII[MPA]=0 UWA↑↑ 箭↑↑
R58=0000 R59=0000 R5A=0000 R5B=0000 R5C=0000 R5D=0000 R5E=0000 R5F=0000    ASCII[MPB]=0 UWA↑↑ 箭↑↑
R60=0000 R61=0000 R62=0000 R63=0000 R64=0000 R65=0000 R66=0000 R67=0000    ASCII[MPC]=0 UWA↑↑ 箭↑↑
R68=0000 R69=0000 R6A=0000 R6B=0000 R6C=0000 R6D=0000 R6E=0000 R6F=0000    ASCII[MPD]=0 UWA↑↑ 箭↑↑
R70=0000 R71=0000 R72=0000 R73=0000 R74=0000 R75=0000 R76=0000 R77=0000    ASCII[MPE]=0 UWA↑↑ 箭↑↑
R78=0000 R79=0000 R7A=0000 R7B=0000 R7C=0000 R7D=0000 R7E=00CF R7F=0009    ASCII[MPF]=0 UWA↑↑ 箭↑↑

MP0=2000:0E1D MP1=2000:0000 MP2=2000:0000 MP3=2000:0000
MP4=2000:0000 MP5=2000:0000 MP6=2000:0000 MP7=2000:0000
MP8=2000:0000 MP9=2000:0000 MPA=2000:0000 MPB=2000:0000
MPC=2000:0000 MPD=2000:0000 MPE=2000:0000 MPF=2000:0ADD

[MP0]=31 20 3D 20 44 72 61 77 52 65 63 74 61 6E 67 6C    [MP8]=01 00 FF 00 56 57 1E 06 B8 00 20 8E D8 8E C0 C6
[MP1]=01 00 FF 00 56 57 1E 06 B8 00 20 8E D8 8E C0 C6    [MP9]=01 00 FF 00 56 57 1E 06 B8 00 20 8E D8 8E C0 C6
[MP2]=01 00 FF 00 56 57 1E 06 B8 00 20 8E D8 8E C0 C6    [MPA]=01 00 FF 00 56 57 1E 06 B8 00 20 8E D8 8E C0 C6
[MP3]=01 00 FF 00 56 57 1E 06 B8 00 20 8E D8 8E C0 C6    [MPB]=01 00 FF 00 56 57 1E 06 B8 00 20 8E D8 8E C0 C6
[MP4]=01 00 FF 00 56 57 1E 06 B8 00 20 8E D8 8E C0 C6    [MPC]=01 00 FF 00 56 57 1E 06 B8 00 20 8E D8 8E C0 C6
[MP5]=01 00 FF 00 56 57 1E 06 B8 00 20 8E D8 8E C0 C6    [MPD]=01 00 FF 00 56 57 1E 06 B8 00 20 8E D8 8E C0 C6
[MP6]=01 00 FF 00 56 57 1E 06 B8 00 20 8E D8 8E C0 C6    [MPE]=01 00 FF 00 56 57 1E 06 B8 00 20 8E D8 8E C0 C6
[MP7]=01 00 FF 00 56 57 1E 06 B8 00 20 8E D8 8E C0 C6    [MPF]=00 0D 0A 03 2D 03 91 01 06 0A 60 0A 00 00 02 00
  
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Introduction

The debugger allows you to single step through each CHIP-16 instructions and see how the variables, registers, memory pointers and memory get affected. The new CHIP-16 command to turn the debugger ON is 9 - this will actually toggle the debugger ON/OFF. The debugger mode defaults to OFF when you first launch DBUG-16. DBUG-16 will run just about as fast as CHIP-16 while the debugger mode is OFF.

NOTES:

- Graphic modes B, C, D and E (MODEX) can be debugged but will not be able to restore the graphics properly.
- The character set with CHAR Vxx = MLn (CHARACTER SET Vxx = MLn) in VGA font will be reset when you single-step.
- In Fast mode, the CHAR Vxx = MLn will work as you don't alternate between the debug and virtual screens.

Debugger command overview:

B - Break point address. Enter a hexadecimal word (4 digits).

NOTES:

- Press ENTER to cancel. (Applies also to 'E', 'J', 'P' and 'S')
- Press shift+a...f to enter capital A-F. (Applies also to 'E', 'J', 'P' and 'S')
- Enter an address outside program limits to cancel break point (FFFF is a good value).

D - Display virtual screen when single stepping through program (Toggles ON/OFF).

In other words, when ON, the debugger will stop and display the screen after the current instruction has executed. Press any key to go back to debugger main screen.

E - Examine memory (functions just like the E command in CHIP16).

G - Go execute current CHIP-16 GSUB instruction. Stops at the instruction after the GSUB. (If current instruction is not a GSUB, it will act as SPACE bar).

J - Jump to an address.

M - Examine memory with previous Start and End addresses.

P - Program memory (functions just like the P command in CHIP16).

S - Change Segment (functions just like the S command in CHIP16). Defaults to segment 8 when first enter debugger mode. Will change as program debugs.

T - Toggle fast mode ON/OFF.

Note: will not run as fast as when debugger mode is OFF, but still much faster than single stepping with continual pressing of SPACE bar.

SPACE bar - execute current CHIP-16 instruction.

UP Arrow key - point to previous instruction (used to skip current instruction).

DOWN Arrow key - point to next instruction (used to skip current instruction).

ESC - get out of debugger. Returns to CHIP-16 command prompt. Debugger mode remains ON unless you toggle it OFF with Command 9.