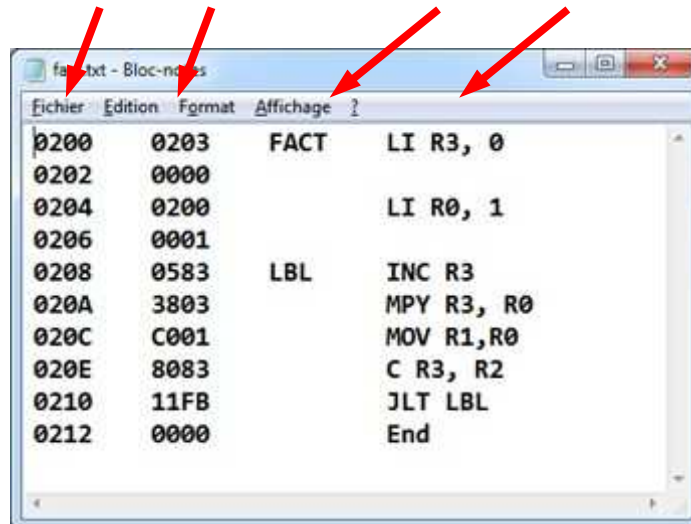


Gen_SIM990.xls

The Excel tool **Gen_SIM990.xls** allows you to generate command scripts for the **SIM990** simulator from programs written in assembly language for 16-bit **TMS990** processors..

The programs must be available as text files containing the instructions line by line in the following format:

Address, Operation Code, Label, Instruction

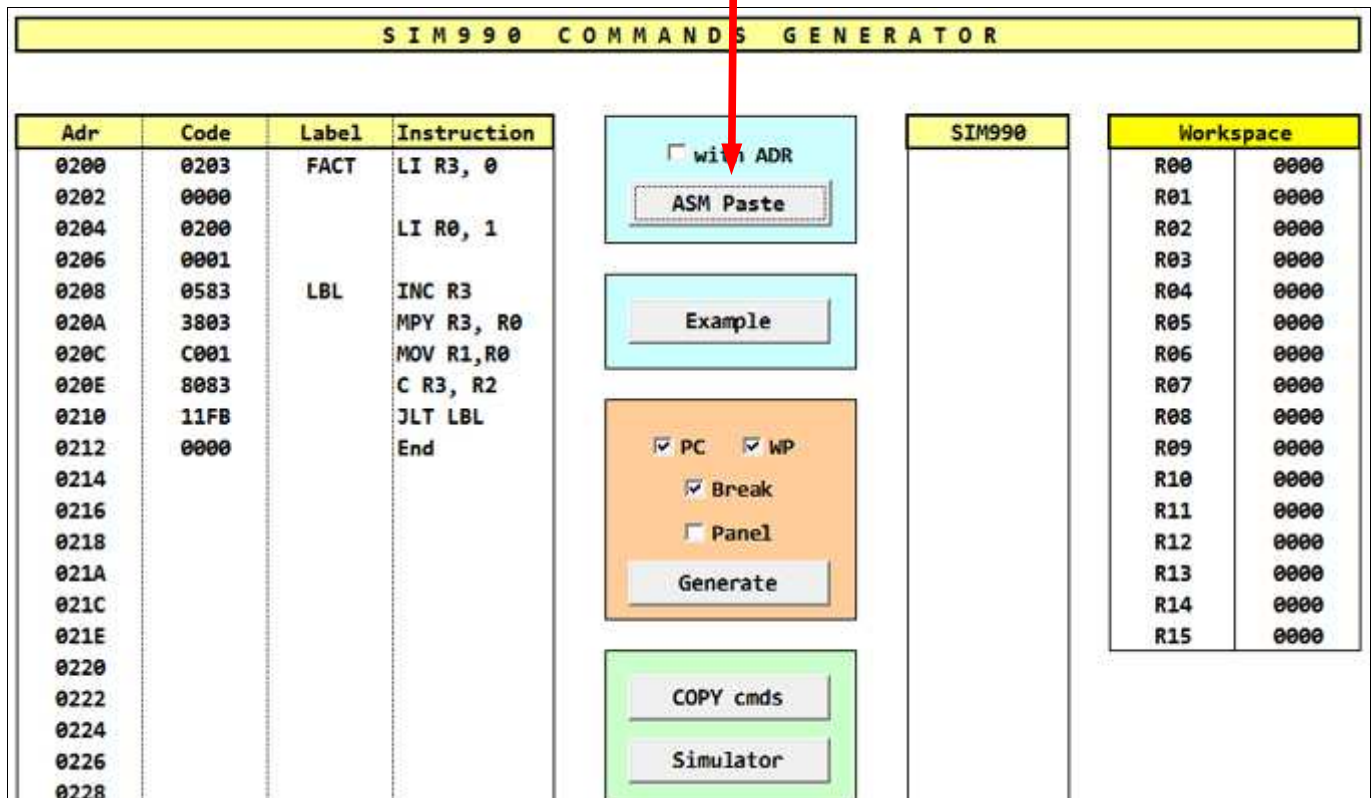


```
0200 0203 FACT LI R3, 0
0202 0000
0204 0200 LI R0, 1
0206 0001
0208 0583 LBL INC R3
020A 3803 MPY R3, R0
020C C001 MOV R1,R0
020E 8083 C R3, R2
0210 11FB JLT LBL
0212 0000 End
```

each element of the line is separated by a tab

① Select the program code and then click “**copy**”.

② In the Gen_SIM990 table, “**paste**”



SIM990 COMMANDS GENERATOR			
Adr	Code	Label	Instruction
0200	0203	FACT	LI R3, 0
0202	0000		
0204	0200		LI R0, 1
0206	0001		
0208	0583	LBL	INC R3
020A	3803		MPY R3, R0
020C	C001		MOV R1,R0
020E	8083		C R3, R2
0210	11FB		JLT LBL
0212	0000		End
0214			
0216			
0218			
021A			
021C			
021E			
0220			
0222			
0224			
0226			
0228			

☐ with ADDR
ASM Paste

Example

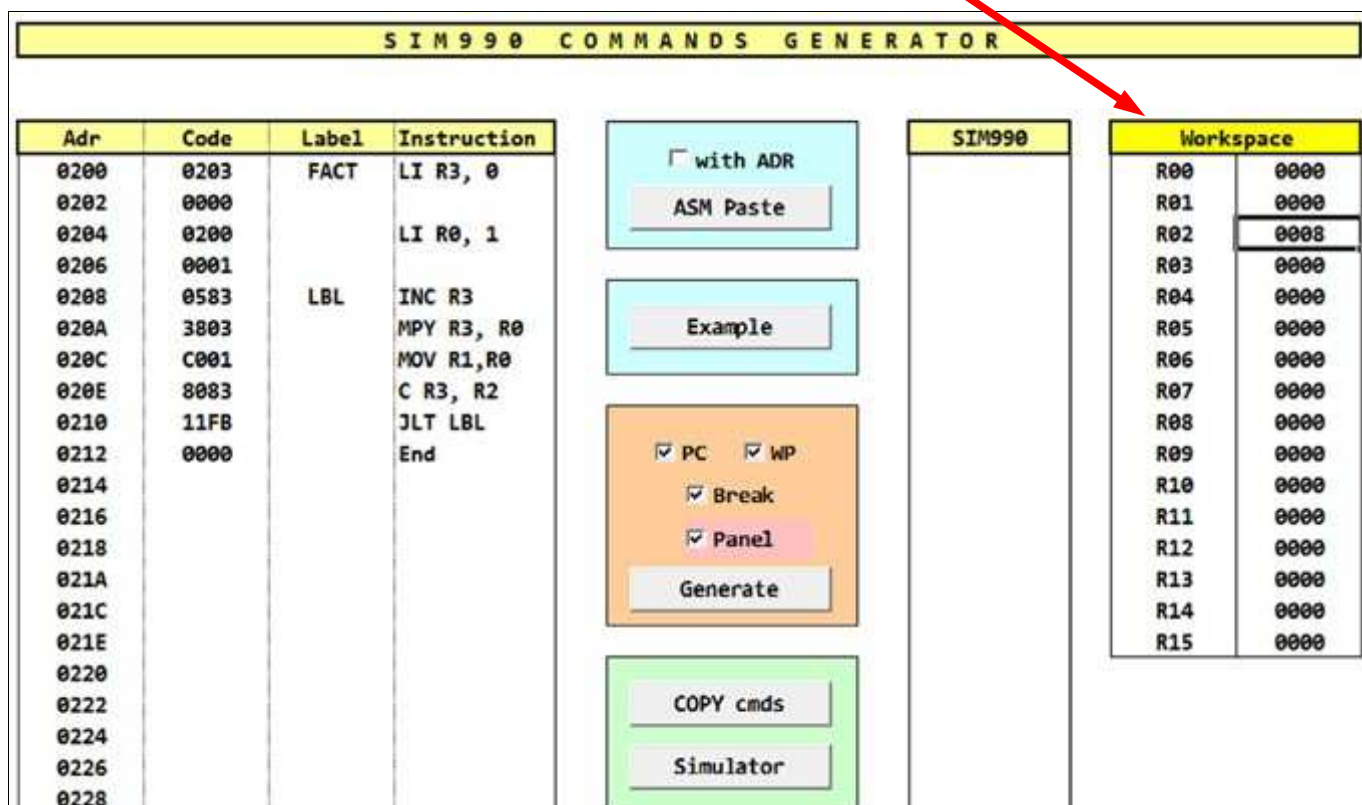
☒ PC ☒ WP
☒ Break
☐ Panel
Generate

COPY cmds
Simulator

SIM990	

Workspace	
R00	0000
R01	0000
R02	0000
R03	0000
R04	0000
R05	0000
R06	0000
R07	0000
R08	0000
R09	0000
R10	0000
R11	0000
R12	0000
R13	0000
R14	0000
R15	0000

- ③ The values of the data registers can be initialized



SIM990 COMMANDS GENERATOR			
Adr	Code	Label	Instruction
0200	0203	FACT	LI R3, 0
0202	0000		
0204	0200		LI R0, 1
0206	0001		
0208	0583	LBL	INC R3
020A	3803		MPY R3, R0
020C	C001		MOV R1,R0
020E	8083		C R3, R2
0210	11FB		JLT LBL
0212	0000		End
0214			
0216			
0218			
021A			
021C			
021E			
0220			
0222			
0224			
0226			
0228			

☐ with ADR
 ASM Paste

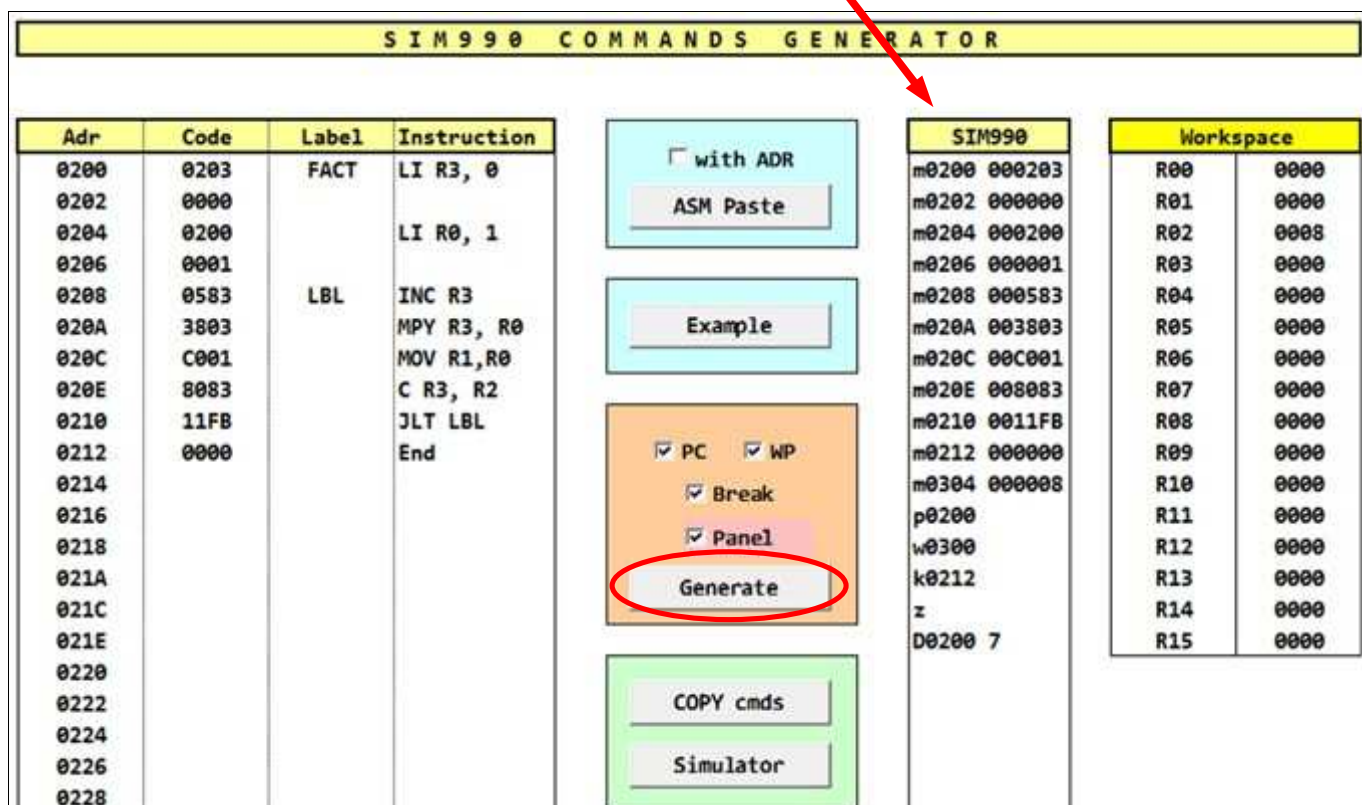
Example

☒ PC ☒ WP
☒ Break
☒ Panel
 Generate

COPY cmds
 Simulator

SIM990		Workspace	
		R00	0000
		R01	0000
		R02	0008
		R03	0000
		R04	0000
		R05	0000
		R06	0000
		R07	0000
		R08	0000
		R09	0000
		R10	0000
		R11	0000
		R12	0000
		R13	0000
		R14	0000
		R15	0000

- ④ The command script for SIM990 can be generated



SIM990 COMMANDS GENERATOR			
Adr	Code	Label	Instruction
0200	0203	FACT	LI R3, 0
0202	0000		
0204	0200		LI R0, 1
0206	0001		
0208	0583	LBL	INC R3
020A	3803		MPY R3, R0
020C	C001		MOV R1,R0
020E	8083		C R3, R2
0210	11FB		JLT LBL
0212	0000		End
0214			
0216			
0218			
021A			
021C			
021E			
0220			
0222			
0224			
0226			
0228			

☐ with ADR
 ASM Paste

Example

☒ PC ☒ WP
☒ Break
☒ Panel
Generate

COPY cmds
 Simulator

SIM990		Workspace	
m0200	000203	R00	0000
m0202	000000	R01	0000
m0204	000200	R02	0008
m0206	000001	R03	0000
m0208	000583	R04	0000
m020A	003803	R05	0000
m020C	00C001	R06	0000
m020E	008083	R07	0000
m0210	0011FB	R08	0000
m0212	000000	R09	0000
m0304	000008	R10	0000
p0200		R11	0000
w0300		R12	0000
k0212		R13	0000
z		R14	0000
D0200	7	R15	0000

⑤ The command script can be copied

Adr	Code	Label	Instruction
0200	0203	FACT	LI R3, 0
0202	0000		
0204	0200		LI R0, 1
0206	0001		
0208	0583	LBL	INC R3
020A	3803		MPY R3, R0
020C	C001		MOV R1,R0
020E	8083		C R3, R2
0210	11FB		JLT LBL
0212	0000		End
0214			
0216			
0218			
021A			
021C			
021E			
0220			
0222			
0224			
0226			
0228			

☐ with ADR
 ASM Paste
 Example
☒ PC ☒ WP
☒ Break
☒ Panel
 Generate
 COPY cmds
 Simulator

SIM990	
m0200	000203
m0202	000000
m0204	000200
m0206	000001
m0208	000583
m020A	003803
m020C	00C001
m020E	008083
m0210	0011FB
m0212	000000
m0304	000008
p0200	
w0300	
k0212	
z	
D0200	7

Workspace	
R00	0000
R01	0000
R02	0008
R03	0000
R04	0000
R05	0000
R06	0000
R07	0000
R08	0000
R09	0000
R10	0000
R11	0000
R12	0000
R13	0000
R14	0000
R15	0000

⑥ and the SIM990 simulator can be launched (according to the parameter "SIM990=" in the Gen_SIM990.prm file)

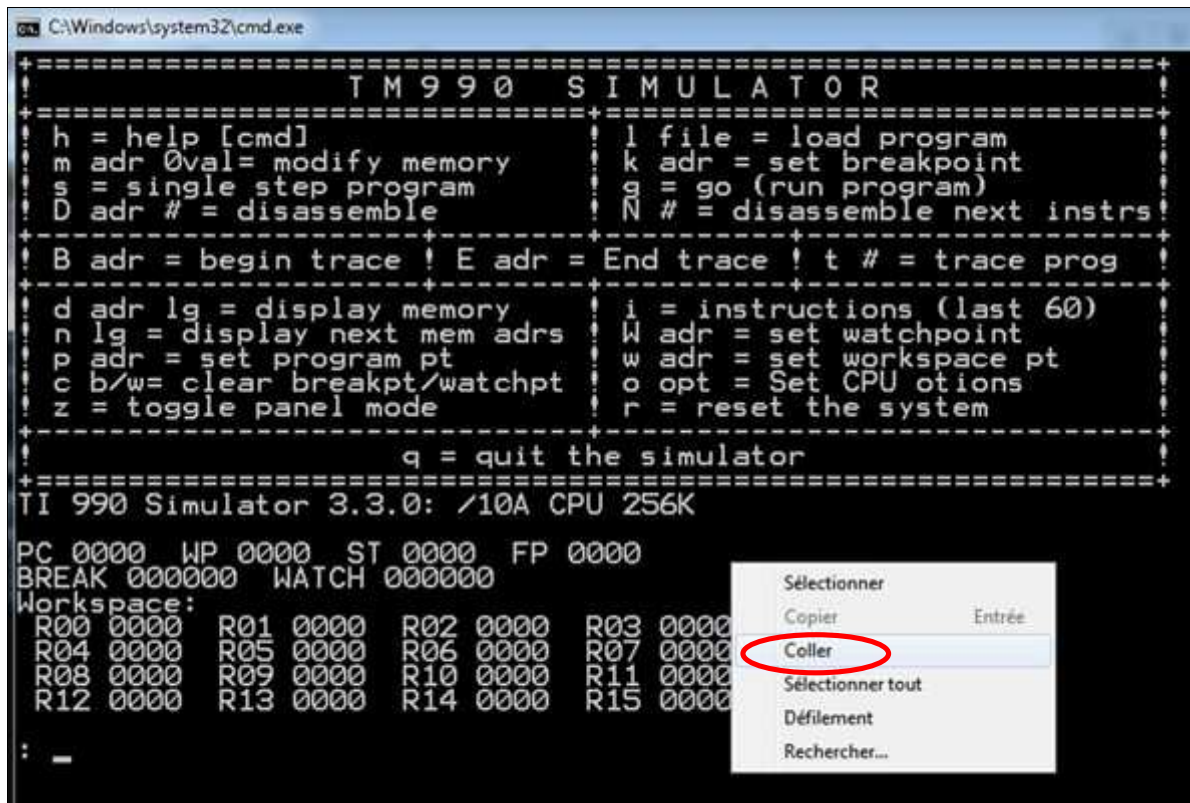
```

SIM990 COMMANDS GENERATOR

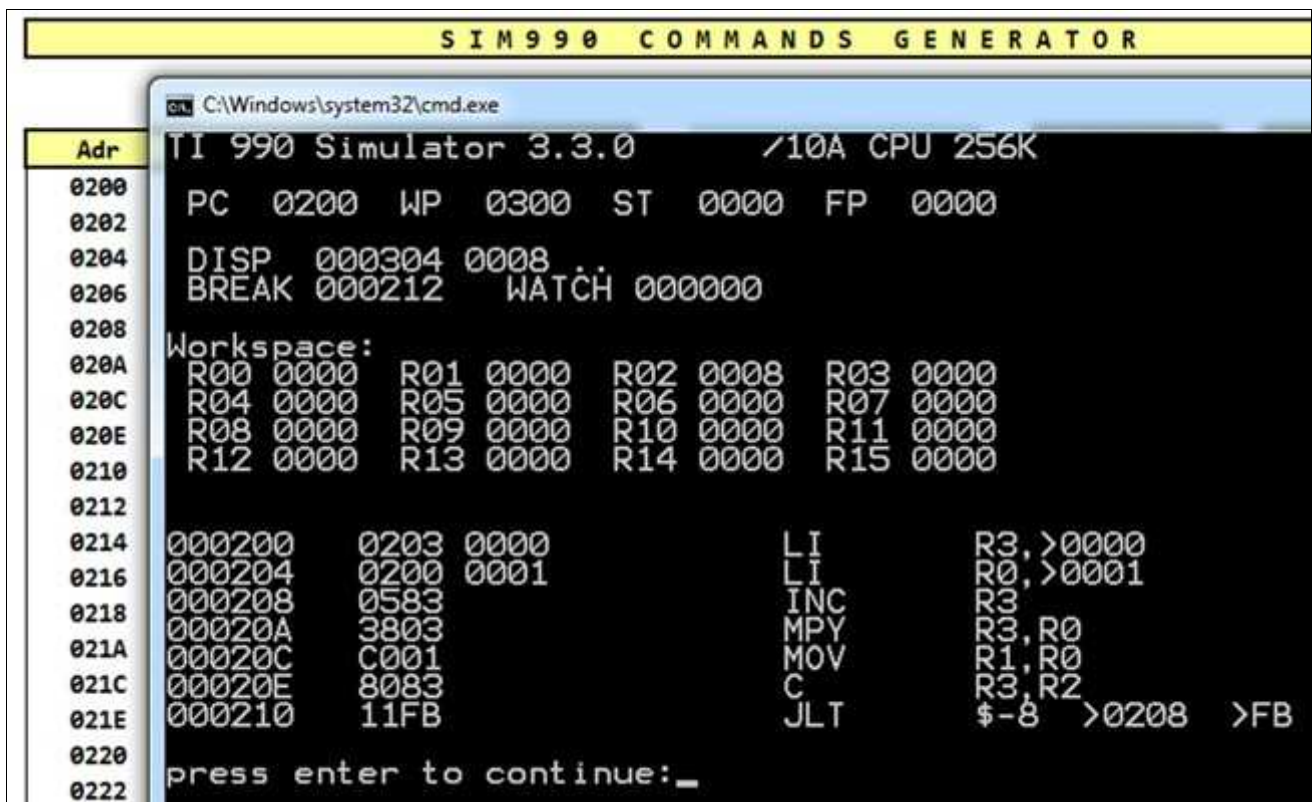
C:\Windows\system32\cmd.exe

=====
T M 9 9 0  S I M U L A T O R
=====
h = help [cmd]          l file = load program
m adr 0val= modify memory k adr = set breakpoint
s = single step program  g = go (run program)
D adr # = disassemble    N # = disassemble next instrs
=====
B adr = begin trace ! E adr = End trace ! t # = trace prog
=====
d adr lg = display memory i = instructions (last 60)
n lg = display next mem adrs W adr = set watchpoint
p adr = set program pt     w adr = set workspace pt
c b/w= clear breakpt/watchpt o opt = Set CPU options
z = toggle panel mode      r = reset the system
=====
q = quit the simulator
=====
TI 990 Simulator 3.3.0: /10A CPU 256K
PC 0000 WP 0000 ST 0000 FP 0000
BREAK 000000 WATCH 000000
Workspace:
R00 0000 R01 0000 R02 0000 R03 0000
R04 0000 R05 0000 R06 0000 R07 0000
R08 0000 R09 0000 R10 0000 R11 0000
R12 0000 R13 0000 R14 0000 R15 0000
: -
  
```

- ⑦ A right-click on the simulator screen displays a submenu allowing you to paste.



- ⑧ and the command script is executed, then the loaded values (PC, WP, BREAK, Workspace) are displayed, and the program is "disassembled" by SIM990.



- ⑨ If all parameters are correct, the loaded program can be executed using the g command. (GO).

The screenshot shows a window titled "SIM990 COMMANDS GENERATOR" with a yellow header. Below the header is a list of memory addresses (Adr) from 0200 to 0222. To the right of the addresses is a black area containing white text. The text displays the TI 990 Simulator version (3.3.0), CPU speed (/10A CPU 256K), and various registers (PC, WP, ST, FP, DISP, BREAK, WATCH) with their current values. A "Workspace:" section lists registers R00 through R15 and their values. The address 0222 shows the command ":g".

Adr	Value
0200	TI 990 Simulator 3.3.0 /10A CPU 256K
0202	PC 0214 WP 0300 ST 2000 FP 0000
0204	DISP 000304 0008
0206	BREAK 000212 WATCH 000000
0208	Workspace:
020A	R00 9D80 R01 9D80 R02 0008 R03 0008
020C	R04 0000 R05 0000 R06 0000 R07 0000
020E	R08 0000 R09 0000 R10 0000 R11 0000
0210	R12 0000 R13 0000 R14 0000 R15 0000
0212	
0214	
0216	
0218	
021A	
021C	
021E	
0220	
0222	:g