Scrumpelmonitor
for 6809

Preface.

This manual explains the commands of the scrumpelmonitor, which was originally written for the 68HC11. I have it also adapted for the Scrumpel 8 computer. The monitor has a very extended command set. You can block move parts of memory, alter it, set breakpoints, watching the registers, search in memory for a specific byte, fill the memory with any byte, create a hexdump with ASCII and loading / saving memory in Intel-hex.

The monitor commands.

The following commands are known by the scrumpelmonitor:

AM *<Alter Memory>*	**AR** *<Alter Register>*	**BC** *<Block Copy>*
BD *<Block Delete>*	**BI** *<Block Insert>*	**CS** *<Clear Screen>*
FI *<Find>*	**GO** *<Goto>*	**HD** *<HexDump>*
MO *<Set More>*	**PM** *<Preset>*	**SB** *<Set Breakpoint>*
SR *<Show Registers>*	**TI** *<TransferInput>*	**TO** *<TransferOutput>*
HE *<Help>*	**?** *<Help>*	**<ESC>** <Escape>*

The monitor commands.

* This command is not a command but a key that can be pressed to abbort commands.

AM Alter Memory <*ADDRESS*>

With this command you can examine Scrumpel's memory and modify (alter) it.
It knows the following undercommands:

CR	Show next byte (echoes a +)
-	Show previous byte
'	Insert text until next '
G	Goto <address> (change alter address)
R	Calculate relative jump value to <address>
<hex>	Fill with ***<hex>*** byte

With the <ESC> command you can exit the **AM** command.

AR Alter Registers

This command allows you to examine and modify the breakpoint register preset values.
Changing and examine the values goes byte by byte as in the AM command. All available registers except the PC (Program Counter) are shown.

BC Block Copy <FromAddress> <FromEndAddress> <ToAddress>

With this command you ca block copy an given block of memory to a destination address.

BD Block Delete <number of bytes> <startaddress> <endaddress>

This command lets you delete ***<number of bytes>*** bytes in the given address block.

BI Block Insert <number of bytes> <startaddress> <endaddress>

This command lets you insert ***<number of bytes>*** bytes in the given address block.

CS Clear Screen

This command clears the screen.

FI Find from <address> to <address> <byte>

This command search for **<byte>** in the given memory block. If the byte is found it shows the first address the given byte appears. If not found it says **<byte> not found in given memory block.**

GO Goto <address>

This start a program at **<address>**. When a breakpoint is set, the register values will be presetted to the values entered by the **AR** command. A RTS instruction returns to the monitor if the SP is not changed.

HD HexDump <address>

This shows the memory starting at address in a nice hexdump format with ASCII values. The dump can be stopped by pressing the **<ESC>** key. If more is set the dump waits for any key pressed after the number of lines set by the **more** command.

MO More <number of lines>

This sets the **<number of lines>** will be printed before waiting for any key pressed. The default value is set to 0 what means no wait is for any key pressed.

PM Preset Memory <From Address> <To Address> with <byte>

This command let you fill the given memoryblock with **<byte>**

SB Set Breakpoint <address>

Set a breakpoint at **<address>**. The original value at **<address>** will be restored when te breakpoint is executed.

SR Show Registers

This commands shows the values from the CPU's registers. If no breakpoint was executed the values are set to 0.

TI Transfer Input

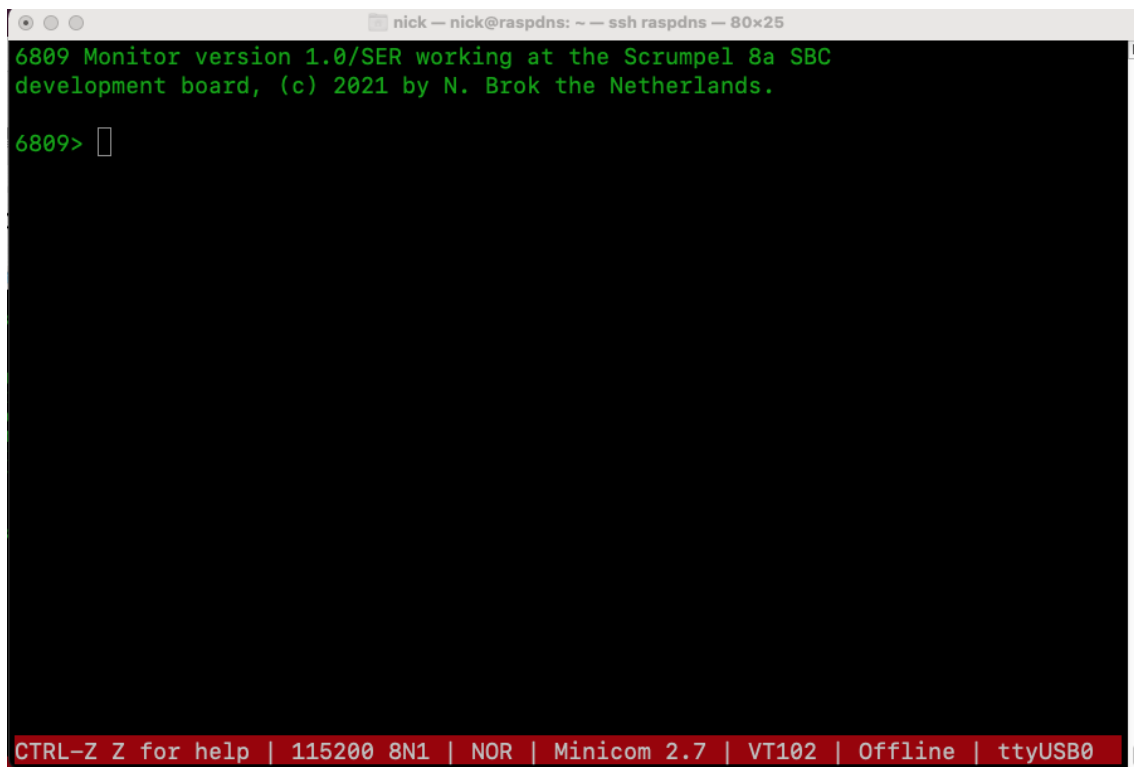This loads a given Intel Hex file into memory of Scrumpel.

TO Transfer Output <from address> <number of lines $1-$FFFF>

This dumps ***<number of lines>*** in Intel Hex file format to the console.

HE and ? Help command

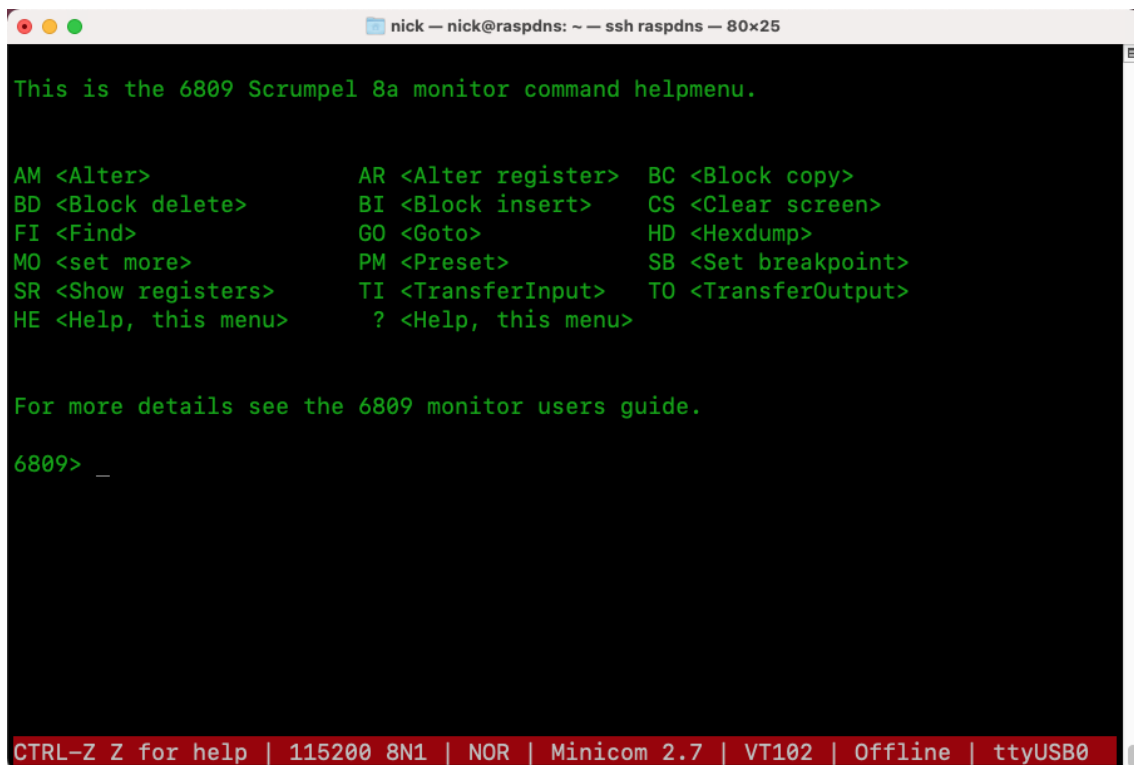As the command already says, a list of known monitor commands will be displayed.

Screenshots of the monitor

Screenshot of the monitor greetings

Screenshot of the help command.

Screenshot Show Registers, Set Breakpoint and execute it.

```
6809 Monitor version 1.0/SER working at the Scrumpel 8a SBC
development board, (c) 2021 by N. Brok the Netherlands.

6809> SR
 a  b   E F H I N Z V C   ix   iy   sp   up   dp   pc
00 00   0 0 0 0 0 0 0 0  0000 0000 0000 0000 00  0000

6809> SB 6000
6809> GO 6000
Breakpoint executed.

 a  b   E F H I N Z V C   ix   iy   sp   up   dp   pc
00 00   1 0 0 0 0 1 0 0  0000 0000 7FFA E4AF 00  6000

6809> _
```


Screenshot alter command.

```
6809> AM 2000
2000 26 & : 26
2001 FE . : R 2000=FE
2002 49 I : 'Ik ben heel erg braaf'
2017 00 . : -
2016 66 f : -
[2015 61 a : +                                              ]
[2016 66 f : +                                              ]
2017 00 . : G 2000
[2000 26 & : +                                              ]
[2001 FE . : +                                              ]
[2002 49 I :                                                ]
[Escaped.                                                   ]
[6809> _                                                    ]
[                                                           ]
[                                                           ]
[                                                           ]
```