

GhostRider

Jesper Skov

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COLLABORATORS

	TITLE : GhostRider		
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Chapter 1

GhostRider

1.1 Documentation for GhostRider version 1.0

```
GhostRider Documentation Main Menu
-----

~~~~Introduction~~~~

~Disclaimer~

~~~~~Editor~~~~~      ~~~~~Input~~~~~
~~~~~Commands~~~~~    ~~~~~Preferences~~~~~

~~~Error~messages~~~

~~~~~The~Future~~~~~    ~~~Acknowledgments~~

~How~to~order~GhostBoard~and~GhostRider~

~History~ ~~~~~~
```

1.2 GhostRider/Introduction

GhostRider V1.0

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Welcome to the GhostRider documentation. Since this is an introduction I'd like to start with a little story about me and my background (feel free to skip it :)

I have always wanted to make my own cartridge. It started back in time when I had a C64 and an Eprom-burner(?). The cartridges, at the time, didn't please me, so I tried to make one myself - no success! I was too lazy and didn't have enough knowledge to do it, so I dropped the idea and later bought an Amiga. After buying the Amiga I spent a year doing NOTHING,

because the task of learning M68000 assembler caused me trouble (lousy books!). When I finally learned assembler I made some demos, but since I have a problem with demoideas, I started to make some utilities. They have not been very successful, but I learned about the system, and that is, I dare say, hard earned knowledge! Anyway, programming the system (2.04+ is GREAT) didn't give the kick I needed, so in the summer 1990 (I think) I dug the old ideas of a cartridge up. In that period I coded a ram-tester (IntelTest) for a hardwarecompany called 3H Design, and I persuaded them to develop a Action Replay-like cartridge, but with RAM like the Expert on the C64. Unfortunately the company died, and I lost contact. First in the end of 1991 I found what I needed, the BeerMon hardware. I tried talking my kid brother (hardware freak) into making a card, but he never did. Later in 1992 I got interested in the design of hardware myself, and developed a card (inspired by the BeerMon hardware, but with custom circuits (PEELs) to cost-reduce it) named GhostBoard. I also tried to make an Always-freeze (well almost) button like the one in Action Replay, but unfortunately without success. (Still got some ideas, though. I think I need to do some DMA - frightening thought. Maybe I will design GhostBoard MK II WITH freeze, when I am through my education.... Time will tell) Where was I? Ah, the GhostBoard worked fine on the A500, but I wanted it to run in a A2000 too. No problem, people think... The A2000 has a 86 pin connector like the A500. Yeah, but that slot IS already occupied by an '030-card, and I am not the only one in this situation (hi Jesper, Jes & Anders), so I had to make it fit in the Zorro slot. Some problems, but we did it. So now GhostBoard runs in A500 (A500+) and Zorro II slots, and therefore (theoretically anyway) also in Zorro III slots (A3000/A4000). Well, this leads me to the main point of this introduction - the monitor. (lotsa introduction to the introduction, eh?)

Last year (December 1992) I brought a preview of the GhostRider and a functional beta-revision of the GhostBoard to The Party II - just to get some response to what I had spent my precious time on. Even though it is difficult to draw attention on such a big party, a few people came by and gave me some moral support. One even bought the GhostBoard (Hi Pontus!), which, I dare say, is support worth a billion dollars (or an arm :-). So, with a strengthen moral and fresh energy I went home and programmed some more... Well, a lot. Unfortunately I had some trouble, like the university, missing documentation on the M68K processor family and the Amiga DOS formats. Also my accelerator blew skyhigh on the first day of my summer vacation (no programming for two months... Blast!) What I am getting at is, moral needs a push again. For this reason I have decided that it is time that the GR meets the public... And here you are :)

If you like what you see here, I ask you to register GhostRider.

You might want to get your hands on a GhostBoard, but the GB is in the process of being updated to revision 2, which support ghosting of the RAM where GhostRider is located. Also, CPU writes to the hardware registers are grabbed. But, since it is not finished yet (well, the logic is working. Only have to do the DRAM-controller.) you will have to be patient (or send me \$1000... then I'll have it finished in a jiffy :)

Well, I guess that this is enough bullshit for the time being. Have a happy New Year! (Remember: Don't drink and drive! :-)

Vejgaard, 13/12-93

Jesper Skov

~~~~~

### 1.3 GhostRider/Editor

#### The GhostRider Editor

The editor in GhostRider is very fast because it does not use any bitmap-scrolling. But speed is not enough to make a good editor, you also need some keyboard-shortcuts to make life easier. I have tried to include many different tools in the editor, but I am still looking for new ideas. Implemented now is:

| Class   | Tool                       | Key    | Shift | Alt |
|---------|----------------------------|--------|-------|-----|
| Edit    | Delete to BOL.             | BS     | x     |     |
|         | Delete to EOL.             | DEL    | x     |     |
|         | Clear screen.              | BS     |       | x   |
|         | Insert space.              | Space  | x     |     |
|         | Change Insert/Overwrite.   | DEL    |       | x   |
|         | Tabulate.                  | TAB    |       |     |
| Jump    | Jump to TOS.               | UP     | x     |     |
|         | Jump to BOS.               | DOWN   | x     |     |
|         | Jump to BOL.               | LEFT   | x     |     |
|         | Jump to EOL.               | RIGHT  | x     |     |
|         | Jump to previous word.     | LEFT   |       | x   |
|         | Jump to next word.         | RIGHT  |       | x   |
|         | Jump to last letter.       | RIGHT  | x     | x   |
| History | Work up through list.      | UP     |       | x   |
|         | Work down through list.    | DOWN   |       | x   |
| Input   | Skip line.                 | Return | x     |     |
|         | Clear line.                | Return |       | x   |
| Errors  | Display last error message | HELP   |       |     |
|         | in header.                 |        |       |     |

Point and press left mouse to re-place cursor.

With left Amiga and the mouse you may also snap and paste text. Mark text with left mousebutton pressed. A double click will mark the word under the pointer, and a triple click will mark the line. Paste the text with the right mousebutton or lAmiga+PasteKey. The snapper does not support multi-line snap, and I have no immediate plans of implementing it.

Plans of future implementation/work are:

- Delete previous/next word.
- Configurable size of history buffer. (Now 16 lines)
- List history.
- Name-completion when working with symbols/diskfiles.
- Pointer to exact problem in faulty line (HELP + Shift).

- Whatever-YOU-might-come-up-with!

#### History:

```
----- * GhostRider V0.42 changes.
280194 - Added PasteKey.
310194 - The keymap was screwed up. Fixed.
        - Now a configurable keymap may be read with the DeckRunner.

----- * GhostRider V1.0 changes.
200794 - You may now use the mouse to re-position the cursor.
        - The tabulater key now inserts four spaces. ~~~~~
```

## 1.4 GhostRider/Input

### GhostRider Input

The default numeric base used in GhostRider is hexadecimal, with some few exceptions; the processor registers have a higher parse-priority, so 'A0' will be parsed as the addressregister A0. There is two ways to circumvent this problem. 1st) Prefix the value with the hexadecimal identifier \$ (i.e. \$A0). 2nd) simply prefix a zero (i.e. 0A0). The table below shows how the different data types are recognized:

| Name        | Identifier | "Legal" characters           |
|-------------|------------|------------------------------|
| Binary      | %xxxx      | 0/1                          |
| Octal       | @xxxx      | 0-7                          |
| Decimal     | #xxxx      | 0-9                          |
| Hexadecimal | (\$)xxxx   | 0-9/a-f/A-F                  |
| ASCII       | 'xxxx'     | '-'z'                        |
| ASCII       | "xxxx"     | "-"z"                        |
| Symbol      | .xxxx      | 0-9/A-Z/a-z (Max. 8 letters) |

The registers listed below are also recognized:

| Name  | Contents                                           |
|-------|----------------------------------------------------|
| *     | Current address (GR address, not PC)               |
| d0-d7 | CPU data registers                                 |
| a0-a7 | CPU address registers                              |
| CCR   | CPU condition code register                        |
| SR    | CPU status register                                |
| SP    | CPU active stack pointer                           |
| USP   | CPU user stack pointer                             |
| ISP   | CPU supervisor/interrupt stack pointer *           |
| MSP   | CPU supervisor/master stack pointer *              |
| SSP   | CPU supervisor (master or interrupt) stack pointer |
| VBR   | CPU vector base register                           |
| SFC   | Source function code register *                    |
| DFC   | Destination function code register *               |
| CACR  | Cache control register *                           |
| CAAR  | Cache address register ('020+'030) *               |

|         |                                                |   |  |
|---------|------------------------------------------------|---|--|
| SRP     | Supervisor root pointer                        | * |  |
| URP     | User root pointer                              | * |  |
| TC      | MMU translation control register               | * |  |
| DTT0    | Data transparent translation register 0        | * |  |
| DTT1    | Data transparent translation register 1        | * |  |
| ITT0    | Instruction transparent translation register 0 | * |  |
| ITT1    | Instruction transparent translation register 1 | * |  |
| MMUSR   | MMU status register                            | * |  |
| FP0-FP7 | FPU data registers                             | * |  |
| FPCR    | FPU                                            | * |  |
| FPSR    | FPU                                            | * |  |
| FPIAR   | FPU                                            | * |  |
| +-----+ |                                                |   |  |

The entries marked with (\*) will be implemented with the dis/assembler support of the bigger CPUs. Erm.. Yeah, right... not exactly... But they will surely be supported... some day. Probably when somebody (you?) complain about them not being there.

The calculator in GhostRider is able to "nest" operators, allowing the operators to have different priority. Use of parentheses is also supported. Below is a list of the recognized operators sorted in order of priority:

| Operator      | Function                                             |  |
|---------------|------------------------------------------------------|--|
| +-----+       |                                                      |  |
| (), []        | Nest previous operator, and calculate contents       |  |
|               | before proceeding.                                   |  |
| +-----+       |                                                      |  |
| -, ~          | Monadic minus, logical not.                          |  |
| +-----+       |                                                      |  |
| <<, >>, ^     | Left/right shift, power (power not implemented yet.) |  |
| +-----+       |                                                      |  |
| &, !, ~       | Logical AND, OR, EOR.                                |  |
| +-----+       |                                                      |  |
| +, -          | Add, subtract.                                       |  |
| +-----+       |                                                      |  |
| >, =>/>=, =   | Compare.                                             |  |
| <= / <, <, <> |                                                      |  |
| +-----+       |                                                      |  |

The use of these operators is not limited to the calculator-function, but can be used in any input. Some examples below:

```

moveq    #10,d0
moveq    #d0+1,d0                ; (d0++ :-)
moveq    %#11101/#2+'0'+('A'!$20),d1
clr.w    .Lives(pc)

M.Lives      ; (hex-dump from address in .Lives)
D.Depacker   ; (disassemble "Depacker")

```

History:

```

----- * GhostRider V0.22 changes.
160194 - (x+y) resulted in "unbalanced parantheses"-error.

```

- \* used in place of a number/symbol will hold the value of the current memory position.

----- \* GhostRider V1.0 changes.

280794 - Reference to SP (stack pointer) did not give the correct value.  
Fixed.~~~~~

## 1.5 GhostRider/Commands

Table of implemented commands

-----

### Memory editors:

|     |                      |
|-----|----------------------|
| ~a~ | Assemble.            |
| ~D~ | Disassemble.         |
| ~d~ | Dis/Assemble Editor. |
| ~M~ | Hex-dump.            |
| ~m~ | Hex-dump Editor.     |
| ~N~ | ASCII-dump.          |
| ~n~ | ASCII-dump Editor.   |
| ~p~ | Memory-peek Editor.  |

### Memory manipulation:

|       |                        |
|-------|------------------------|
| ~F~   | Fill memory.           |
| ~xor~ | XOR Memory.            |
| ~nop~ | Fill memory with NOPs. |
| ~T~   | Transfer memory.       |
| ~E~   | Exchange memory.       |
| ~c~   | Compare memory.        |
| ~h~   | Hunt data.             |
| ~hn~  | Hunt NOT data.         |
| ~hb~  | Hunt branches.         |
| ~hp~  | Hunt PC-relative.      |
| ~ht~  | Hunt text.             |
| ~at~  | Dump addressstable.    |
| ~res~ | Resume command.        |

### Disk:

|          |                                |
|----------|--------------------------------|
| ~dir~    | Directory.                     |
| ~info~   | Disk Info.                     |
| ~cd~     | Show/change current directory. |
| ~l~      | Load file.                     |
| ~S~      | Save file.                     |
| ~del~    | Delete file.                   |
| ~format~ | Disk format.                   |
| ~BM~     | Disk BitMap.                   |
| ~rb~     | Read Blocks.                   |
| ~wb~     | Write Blocks.                  |
| ~rt~     | Read Tracks.                   |
| ~wt~     | Write Tracks.                  |
| ~rtr~    | Read RAW Tracks.               |

~wtr~            Write RAW Tracks.  
~sync~          Show/Change disksync.  
~tracklen~      Show/Change track length.

Register control:

~r~            Show/change register contents.

BreakPoint control:

~bs~           Set BreakPoint.  
~bl~           List BreakPoints.  
~bz~           Zap BreakPoint.  
~breg~          Show/change TRAP used for BreakPoints.

Symbol control:

~.~            Define Symbol.  
~ls~           List Symbols.  
~zs~           Zap Symbol(s).

SystemInformation:

~libs~          Display Exec's librarylist.  
~devs~          Display Exec's devicelist.  
~resc~          Display Exec's resourcelist.  
~resi~          Display Exec's residentlist.  
~tasks~        Display Exec's tasklist.  
~ports~        Display Exec's portlist.  
~kickmem~      Display Exec's kickmemlist.  
~kicktag~      Display Exec's kicktaglist.  
  
~irq~           Display/Change interrupt vectors.

Copper control:

~cp~           Display/change exit-copperpointers.  
~copact~       Display/change exit-copper-strobe.  
~copoffset~    Display/change entry-copper-search-offset.

Miscellaneous:

~?~            Calculator.  
~cls~          Entry CLS control.  
~work~        Display/move workarea.  
~ver~         Display GhostRider version string.  
  
~pal~          Set exit screen mode to PAL.  
~ntsc~        Set exit screen mode to NTSC.  
~mon~         Display/change screen mode.  
  
~cus~          Display/change exit-CR-data.  
  
~date~        Display current date and time.  
  
~deplode~      Depack imploded data.  
~depack~      Depack PowerPacked data.

---

```

~nmi~          Set/Free NMI-vector.
~nmirom~       Dis/enable NMI-entry from ROM.
~cold~         Dis/enable ColdCapture Reset-entry.

~traceon~      Enable internal debugging.
~traceoff~     Disable internal debugging.

~J~           Call routine.
~X~           Exit after call to routine.
~x~           Exit.
~kill~        Kill and exit.

```

```
~~~~~
```

## 1.6 GhostRider/Assembler

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Assembler                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Syntax      | a <address><br>,[address] [mnemonic]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Function    | Invoke M68k lineassembler from CA (or address).<br>Assemble line.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| History     | <p>261292 - Most M68000 commands assemble correct.<br/>090493 - All M68k commands now supported.</p> <p>----- * GhostRider V0.22 changes.</p> <p>030194 - Fixed sub.l Ax,Ay bug.<br/>          - Fixed cmp.w #xx,Dn. Now assembled to cmpi.w...</p> <p>040194 - Will keep position at error. Errortext in header.</p> <p>160194 - Forced size of ([],ods) was not considered.<br/>          - Parse-errors at this ^ position was not handled.</p> <p>170194 - a (no arg) will start the lineassembler from the<br/>          curent memory address.</p> <p>----- * GhostRider V0.42 changes.</p> <p>030394 - BTST Dn,#&lt;data&gt; was not recognized. Fixed.</p> <p>050394 - ADD/SUB/CMP &lt;ea&gt;,An was not handled correct. Fixed.<br/>          - CMP -&gt; CMPM assembly now handled correct.</p> |
| Preferences | None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Ideas/Bugs  | The two-line assembler for the long (60+chars) commands of<br>the 'o2o+ is not working correctly.~~~~~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

## 1.7 GhostRider/Disassembler

|        |                   |
|--------|-------------------|
| Name   | Disassembler      |
| Syntax | D <start><\><end> |

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Function    | Disassemble memory.<br>Use \ to get infinite dump. Dump area by setting both start and end.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| History     | <p>261292 - Support all M68000 commands.<br/> 010593 - Support all commands of the M68k family.<br/> 250593 - Support for area/continuously disassembly.</p> <p>----- * GhostRider V0.22 changes.<br/> 160194 - Added \ specifier.<br/> 010294 - Fixed potential bug in DC.W disassembling.<br/> - ASCII column of the DC.W command moved 16 chars right.</p> <p>----- * GhostRider V0.42 changes.<br/> 050394 - The shift commands now disassemble immediate shift counts correct.<br/> - Cache types was not handled correct. Fixed.</p> <p>----- * GhostRider V1.0 changes.<br/> 290694 - FMOVE Rn,&lt;ea&gt; crashed GR. Fixed.<br/> 200794 - Addq/subq #8 disassembled #0. Fixed.</p> |
| Preferences | <p>Breaklines after:</p> <ul style="list-style-type: none"> <li>- Unconditional branches.</li> <li>- Conditional branches.</li> <li>- Exception-causing commands.</li> <li>- Calls to subroutines.</li> <li>- Returns from subroutines.</li> <li>- Data words.</li> </ul> <p>Negative offsets representation (-\$01/\$ff)<br/> Show ASCII string after data words.<br/> How many lines to disassemble.</p>                                                                                                                                                                                                                                                                                 |
| Ideas       | <p>Replace address with symbol if assigned.<br/> Better breakline after data words (try &amp; u c what I mean).~~~~~</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

## 1.8 GhostRider/DisassembleEditor

|          |                                                                                                                                                                                                                                                                                                                                                                         |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name     | DisassembleEditor                                                                                                                                                                                                                                                                                                                                                       |
| Syntax   | d <addr>            Enter disassembleeditor (at address).                                                                                                                                                                                                                                                                                                               |
| Function | <p>This command opens the GhostRider Multi-Editor in Disassembler-mode.<br/> Cursor up and down (and return) will scroll the display up and down.<br/> Cursor right and DEL will enable you to edit the disassembled command.<br/> Any other key will clear the line and let you type a new command.<br/> When editing you will be able to enter a string with well</p> |

---

over 100 chars. This makes it possible to enter the long commands of the 'o2o+ CPUs without too much trouble. Commands that are too long for the display will be split into two lines. Such two lines will be merged if you choose to edit them.

Direct control:

ESC        Exit editor (+shift to keep display).

Control shortcuts:

HELP       Show register values.

Amiga shortcuts:

,        Jump to previous address in hunt/compare-buffer.  
.        Jump to next address in hunt/compare-buffer.  
l-0      Jump to mark.  
a        Assign symbol to address.  
b        Block start/end.  
h        Go to hex dump editor.  
j        Jump to address.  
l        Quick-Jump to last address.  
n        Go to ASCII editor.  
o        Jump to current address+offset.  
p        Go to Peeker editor.  
q        Quick-Jump to source (/dest) address.  
x        Exit editor.  
z        Zap table of nested jumps.  
  
<        Jump to first address in hunt/compare-buffer.  
>        Jump to last address in hunt/compare-buffer.  
!-)      Mark address.  
B        Hide/show block.  
C        Copy area.  
F        Fill area with NOPs.  
J        Quick-Jump to address of memory contents.  
Q        Quick-Jump to dest (/source) address.  
X        Exit without restoring display.

History        240693 - Editor can now scroll up'n'down, even though the  
                 up-scroll is very bad... Gotta recode that part!  
                 - All shortcuts above included.

----- \* GhostRider V0.22 changes.

170194 - Moved blockmarking to b/B. Dynamic block-limit  
         marked with ><.

----- \* GhostRider V0.42 changes.

270194 - Added access to Peeker Editor.  
         - Moved copy and fill to C/F.

280194 - Added register display.

050394 - Improved upwards disassembly a bit.

040494 - Upwards disassembly at last functions as planned.  
         - Added q/Q/J quick-jumps.  
         - Copy and NOP-fill could not be started. Fixed.

090494 - Made it possible to edit the opcodes.

---



```
----- * GhostRider V1.0 changes.
280794 - At offset jump the CA is nested.
```

Preferences      See the disassembler.

Ideas            See the disassembler.  
Hunt pc/branch/abs access to CA.~~~~~

## 1.9 GhostRider/Hex-dump

Name            Hex-dump

Syntax          M <start><\><end>  
Mb <start><\><end>  
Mw <start><\><end>  
Ml <start><\><end>

Function        Function Dump memory contents in hex and ASCII format, with 16 bytes on each line. The mb/mw/ml will change the size of the hex-number to byte, word and long respectively. The M-command uses the last forced size.

To alter the memory contents simply change the numbers or the ASCII string and press return. The memory will be changed to the hex/ASCII values according to the position of the cursor when return is pressed. Notice that only 16 bytes will be changed. Spaces between the hexnumbers are not needed. See the ASCII-dump command for an explanation on how the ASCII-string is interpreted.  
Use \ to get infinite dump. Dump area by setting both start and end.

History        261292 - Works just fine!

```
----- * GhostRider V0.22 changes.
160194 - Added \ specifier.
```

Preferences    None.

Ideas          None. ~~~~~

## 1.10 GhostRider/Hex-dump Editor

Name            Hex-dump Editor

Syntax          m <address>  
mb <address>  
mw <address>  
ml <address>

Function            This command opens the GhostRider Multi-Editor in Hex-mode. The mb/mw/ml will change the size of the hex-number to byte, word and long respectively. The m alone will uses the last forced size. In this editor memory is altered when any input is given. The two columns allow two different input-types. When in the hex-column only the letters 0-9 and A-F have effect on the memory, while all graphically represented letters are valid input in the ASCII-column.

Direct control:

ESC            Exit editor (+shift to keep display)  
TAB            Shift Hex/ASCII column.

Control shortcuts:

HELP           Show register values.  
a            Dump ASCII at distant address.  
b            Force dump-size to byte.  
d            Disassemble at distant address.  
h            Dump Hex at distant address.  
w            Force dump-size to word.  
l            Force dump-size to long.

Amiga shortcuts:

,            Jump to previous address in hunt/compare-buffer.  
.            Jump to next address in hunt/compare-buffer.  
l-0          Jump to mark.  
a            Assign symbol to current address.  
b            Block start/end.  
c            Copy area.  
d            Go to Disassembly-Editor.  
e            Enter expression. The result will be put in the current address.  
j            Jump to address.  
l            QuickJump to last address.  
n            Go to ASCII-Editor.  
o            Jump to current address + offset.  
p            Go to Peeker Editor.  
q            QuickJump.  
r            Re-position cursor.  
u            QuickJump to current address + BCPL offset.  
             +Alt - skip two BCPL-words instead of one.  
x            Exit.  
z            Zap table of nested jumps.

<            Jump to first address in hunt/compare-buffer.  
>            Jump to last address in hunt/compare-buffer.  
!-)          Mark address.  
B            Hide/show block.  
E            Enter expression and size. Result in current

address.

F            Fill with custom size.  
Q            QuickJump + Offset.  
U            QuickJump to BCPL address.  
X            Exit without restoring display.

History            230193 - Works fine!

```

----- * GhostRider V0.22 changes.
170194 - Moved BCPL functions to p/P.
 - Moved blockmarking to b/B. Dynamic block-limit
 marked with ><.
 - Added QuickJump+Offset on Q.

```

```

----- * GhostRider V0.42 changes.
270194 - Added access to Peeker Editor.
 - Moved BCPL functions to u/U.
 - Removed default-size fill.
 - Moved copy and fill to C/F.
280194 - Added register display.

```

```

----- * GhostRider V1.0 changes.
280794 - At offset jump the CA is nested.

```

Preferences      See Hex-Dump.

Ideas            Hunt pc/branch/abs access to CA.  
                  Point+Click should reposition the cursor in HEX/ASCII block.

~~~~~

## 1.11 GhostRider/ASCII-dump

Name            ASCII-dump

Syntax          N <start><\><end>

Function        Dump memory contents in ASCII format. To alter memory, simply write new text and press return. Only 64 bytes will be changed. The ASCII string is started with ' or " and ends with the same character. This can cause problems if the if the string contains ' or " chars. Ideas for a solution are welcome. Another problem is the values 0-31 and 128-255, which are not graphically represented in the GhostRider font. I see three solutions to the problem:

- 1) Expand the font.
- 2) Print the codes 160-255 with inverted 32-127 chars.
- 3) Replace the codes with a predefined char, representing all non-ASCII codes.

At present is the 3rd solution used. I don't like (1-2) because there is no graphic designs for the codes 0-31 (pure control codes), but I may include (2) later. Response is welcome.

Use \ to get infinite dump. Dump area by setting both start and end.

History        261292 - Working fine.

```

----- * GhostRider V0.22 changes.
160194 - Added \ specifier.

```

Preferences    NonASCII character.

Ideas                   Solution to the above mentioned problem with the  
                           ASCII-string.  
                           Implementation of (1) or (2) above if enough requests.  
 ~~~~~

## 1.12 GhostRider/ASCII-dump Editor

|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--------------------------------------------------|---|----------------------------------------------|-----|---------------|---|-----------------------------------|---|------------------|---|---------------------------|---|------------------------|---|------------------|---|----------------------------|---|-----------------------------------|---|---------------------|---|----------------------------|---|-----------------------------------------------|---|----------------------------------------------|-----|---------------|---|------------------|---|------------|---|------------------------|---|---------------------------------|
| Name     | ASCII-dump Editor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| Syntax   | n <address>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| Function | <p>This command opens the GhostRider Multi-Editor in ASCII-mode. In this editor memory is altered when any input is given. All graphically represented letters are valid input.</p> <p>Direct control:<br/>         ESC       Exit editor (+shift to keep display).</p> <p>Control shortcuts:<br/>         HELP      Show register values.</p> <p>Amiga shortcuts:</p> <table border="0"> <tr><td>,</td><td>Jump to previous address in hunt/compare-buffer.</td></tr> <tr><td>.</td><td>Jump to next address in hunt/compare-buffer.</td></tr> <tr><td>l-0</td><td>Jump to mark.</td></tr> <tr><td>a</td><td>Assign symbol to current address.</td></tr> <tr><td>b</td><td>Block start/end.</td></tr> <tr><td>d</td><td>Go to Disassembly-Editor.</td></tr> <tr><td>h</td><td>Go to hex dump editor.</td></tr> <tr><td>j</td><td>Jump to address.</td></tr> <tr><td>l</td><td>QuickJump to last address.</td></tr> <tr><td>o</td><td>Jump to current address + offset.</td></tr> <tr><td>r</td><td>Re-position cursor.</td></tr> <tr><td>z</td><td>Zap table of nested jumps.</td></tr> <tr><td>&lt;</td><td>Jump to first address in hunt/compare-buffer.</td></tr> <tr><td>&gt;</td><td>Jump to last address in hunt/compare-buffer.</td></tr> <tr><td>!-)</td><td>Mark address.</td></tr> <tr><td>B</td><td>Hide/show block.</td></tr> <tr><td>C</td><td>Copy area.</td></tr> <tr><td>F</td><td>Fill with custom size.</td></tr> <tr><td>X</td><td>Exit without restoring display.</td></tr> </table> | , | Jump to previous address in hunt/compare-buffer. | . | Jump to next address in hunt/compare-buffer. | l-0 | Jump to mark. | a | Assign symbol to current address. | b | Block start/end. | d | Go to Disassembly-Editor. | h | Go to hex dump editor. | j | Jump to address. | l | QuickJump to last address. | o | Jump to current address + offset. | r | Re-position cursor. | z | Zap table of nested jumps. | < | Jump to first address in hunt/compare-buffer. | > | Jump to last address in hunt/compare-buffer. | !-) | Mark address. | B | Hide/show block. | C | Copy area. | F | Fill with custom size. | X | Exit without restoring display. |
| ,        | Jump to previous address in hunt/compare-buffer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| .        | Jump to next address in hunt/compare-buffer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| l-0      | Jump to mark.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| a        | Assign symbol to current address.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| b        | Block start/end.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| d        | Go to Disassembly-Editor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| h        | Go to hex dump editor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| j        | Jump to address.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| l        | QuickJump to last address.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| o        | Jump to current address + offset.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| r        | Re-position cursor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| z        | Zap table of nested jumps.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| <        | Jump to first address in hunt/compare-buffer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| >        | Jump to last address in hunt/compare-buffer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| !-)      | Mark address.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| B        | Hide/show block.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| C        | Copy area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| F        | Fill with custom size.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| X        | Exit without restoring display.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |
| History  | <p>240193 - Works fine!</p> <p>----- * GhostRider V0.22 changes.</p> <p>170194 - Moved blockmarking to b/B. Dynamic block-limit marked with &gt;&lt;.</p> <p>----- * GhostRider V0.42 changes.</p> <p>270194 - Added access to Peeker Editor.<br/>               - Moved copy and fill to C/F.</p> <p>280194 - Added register display.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |   |                                                  |   |                                              |     |               |   |                                   |   |                  |   |                           |   |                        |   |                  |   |                            |   |                                   |   |                     |   |                            |   |                                               |   |                                              |     |               |   |                  |   |            |   |                        |   |                                 |

---

```
----- * GhostRider V1.0 changes.
280794 - At offset jump the CA is nested.
```

Preferences      See ASCII-Dump.

Ideas            Hunt pc/branch/abs access to CA. ~~~~~

## 1.13 GhostRider/Memory-peek Editor

Name            Memory-peek Editor

Syntax          p <address>

Function        A simple memory peeker allowing peeking of both Chip and Fast memory. The border-handling is not too bright in this version but it shouldn't cause too many problems (well, maybe if you have \$C00000 RAM).

Direct control:

ESC            Exit editor (+shift to keep display).

Control shortcuts:

HELP          Show register values.

Amiga shortcuts:

```
1-0 Jump to mark.
- Decrease screen width.
= Increase screen width.
, Decrease modulo.
. Increase modulo.
[Decrease height.
] Increase height.
a Assign symbol to current address.
d Go to Disassembly-Editor.
h Go to hex dump editor.
j Jump to address.
l QuickJump to last address.
m Change modulo.
n Go to ASCII-Editor.
o Jump to current address + offset.
w Change screen width.
```

!-)          Mark address.

X            Exit without restoring display.

History        ----- \* GhostRider V0.22 released.  
190194 - Added to monitor in a hurry. Still many things to be done.

```
----- * GhostRider V0.32 released.
270194 - Added some more functions.
280194 - Added height control.
 - Problem when crossing RAMBank border fixed.
 - Added register display.
```

```

----- * GhostRider V0.42 changes.
040494 - Function renamed to "p".
 - Vertical scrolling is now done according to screen
 width (including modulo).

```

Preferences      The memorybanks in your system must be defined in the RAMBank preferences. See the GRPref.guide for further information.

Ideas            None. ~~~~~

## 1.14 GhostRider/Fill data

Name            Fill data

Syntax          F [beg] [end] [data (joker)]

Function        Fill memoryarea with given data. The data must be supplied in hexadecimal notation. The fill-pattern can have any length between 1 and 32 bytes. Jokers are supported nibblewise, thus making it possible to have a fill-mask.  
Examples:

```

F 100 200 35320dcc will fill 100-200 with the longword
 data $35320DCC.
F 0 100 01??02??03??04 will fill 0-100 with 01xx02xx03xx04
 where the x-marked nibbles will
 contain the pre-fill data.

```

History        310893 - Added to monitor. No problems.

Preferences    The joker is configurable.  
Progress-bar.

Ideas           None. ~~~~~

## 1.15 GhostRider/XOR memory

Name            XOR memory

Syntax          xor [beg] [end] [data]

Function        Exclusive-OR memoryarea with data. The data must be supplied in hexadecimal notation. The XOR-pattern can have any length between 1 and 32 bytes.

```

xor 100 200 35320dcc will XOR 100-200 with the longword
 data $35320DCC.
xor 0 100 0001020304 will XOR 0-100 with 0001020304.

```

History        181093 - Added to monitor. No problems.

|             |                                                  |
|-------------|--------------------------------------------------|
| Preferences | Progress-bar.                                    |
| Ideas       | Add joker-parsing like in the Fill-command.~~~~~ |

## 1.16 GhostRider/Fill NOPs

|             |                                         |
|-------------|-----------------------------------------|
| Name        | Fill NOPs                               |
| Syntax      | nop [beg] [end]                         |
| Function    | Fill area with NOPs.                    |
| History     | 181093 - Added to monitor. No problems. |
| Preferences | Progress-bar.                           |
| Ideas       | None.~~~~~                              |

## 1.17 GhostRider/Transfer memory

|             |                                                                                 |
|-------------|---------------------------------------------------------------------------------|
| Name        | Transfer memory                                                                 |
| Syntax      | T [start] [end] [dest]                                                          |
| Function    | Transfer a memoryarea to a new location. Overlapping areas are handled correct. |
| History     | 181093 - Added to monitor. No problems.                                         |
| Preferences | Progress-bar.                                                                   |
| Ideas       | None.~~~~~                                                                      |

## 1.18 GhostRider/Exchange memory

|             |                                                              |
|-------------|--------------------------------------------------------------|
| Name        | Exchange memory                                              |
| Syntax      | E [start] [end] [dest]                                       |
| Function    | Exchange two memoryareas. Overlapping areas are not allowed. |
| History     | 181093 - Added to monitor. No problems.                      |
| Preferences | Progress-bar.                                                |
| Ideas       | None.~~~~~                                                   |

---

## 1.19 GhostRider/Compare memory

|             |                                         |
|-------------|-----------------------------------------|
| Name        | Compare memory                          |
| Syntax      | c [start] [end] [dest]                  |
| Function    | Compare two memoryareas.                |
| History     | 170193 - Added to monitor. No problems. |
| Preferences | Progress-bar.                           |
| Ideas       | None.~~~~~                              |

## 1.20 GhostRider/Hunt PC-relative access

|             |                                                                                                                                                                                                                       |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Hunt PC-relative access.                                                                                                                                                                                              |
| Syntax      | hp [address]                                                                                                                                                                                                          |
| Function    | Hunt for PC-relative access to address. Only 32KB on each side of the address will be searched, and only for 8 and 16 bit addressingmodes.                                                                            |
| History     | 181093 - Added to monitor. No problems.                                                                                                                                                                               |
| Preferences | Progress-bar.                                                                                                                                                                                                         |
| Ideas/Bugs  | Recognition of the 'o2o+ 32bit-addressingmodes, searched for in supplied area (no auto-calculated area!).<br>There may be some mnemonics not found by this hunter. If a such is found (:~), please let me know. ~~~~~ |

## 1.21 GhostRider/Hunt text

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Hunt text                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Syntax      | ht [start] [end] <-[joker]> <c> ["text"/'text']                                                                                                                                                                                                                                                                                                                                                                                  |
| Function    | Hunt text in memory. The text can be written in 2+ parts to make a search string with both ' and " characters (maximum 32 characters). "Name: " ' "Jesper" ' will result in the search-string: >Name: "Jesper"<.<br>You can also replace unknown letters with jokers (?). To use another joker than the default, use the <joker>-option (e.g. with *).<br>Finally you can disable the case sensitivity by adding the <c>-option. |
| History     | 281292 - Working                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Preferences | The default joker is configurable.                                                                                                                                                                                                                                                                                                                                                                                               |

---



Progress-bar.

Ideas            Add offset or do logic operation on textstring before  
search.~~~~~

## 1.22 GhostRider/Dump Address Table

|             |                                                                                                                                                                                                                                                                                                                                                                   |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Dump AddressTable                                                                                                                                                                                                                                                                                                                                                 |
| Syntax      | at                                                                                                                                                                                                                                                                                                                                                                |
| Function    | Dump list of addresses in AT. This buffer keeps the result from the last hunt/compare operation. Currently this buffer holds 32 addresses. The hunt and compare operations break when this buffer is full, but can be continued if wanted. This buffer gives the possibility to study the result of an hunt/cmp operation without writing all the found addresses |
| on          | a paper and then examining one address at a time. For fast check of all the found addresses simply enter the                                                                                                                                                                                                                                                      |
| appropriate | editor and use the AT-browse shortcuts (Amiga+</,./.>).                                                                                                                                                                                                                                                                                                           |
| History     | 281292 - Added to monitor.                                                                                                                                                                                                                                                                                                                                        |
| Preferences | None.                                                                                                                                                                                                                                                                                                                                                             |
| Ideas       | If hunting/compared gives many addresses a bigger buffer may be appreciated... Let me know. ~~~~~                                                                                                                                                                                                                                                                 |

## 1.23 GhostRider/Directory

|             |                                                                                                                                                                                                                                                                                                 |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Disk directory                                                                                                                                                                                                                                                                                  |
| Syntax      | dir <dfx:><path>                                                                                                                                                                                                                                                                                |
| Function    | Show directory of current/specified path in a UNIX-type style. Some extra protectionflags are used:<br>H - This is a hard-link.<br>C - This file has a comment.                                                                                                                                 |
| History     | 261292 - Supports DOS0 (OFS)<br>?????? - Supports DOS1-5... Well the international mode is somewhat.. erm, fucked up. Ain't got them charz!<br><br>----- * GhostRider V1.0 changes.<br>270494 - Now support UN*X style parsing. See CD~notes and function for a description of the path parser. |
| Preferences | None.                                                                                                                                                                                                                                                                                           |
| Ideas       | None.~~~~~                                                                                                                                                                                                                                                                                      |

---

## 1.24 GhostRider/Disk Information

|             |                                                                                                                                                                                          |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Disk Information                                                                                                                                                                         |
| Syntax      | info                                                                                                                                                                                     |
| Function    | Display information about disks in drives.<br>Displayed is:<br>DiskType (DD/HD)<br>Disk Format<br>DiskName<br>Free Space<br>TrackLengths<br>DiskSync                                     |
| History     | 081093 - First simple version. Still some bugs to fix.<br><br>----- * GhostRider V0.42 changes.<br>080494 - Removed an ODD word-access that caused an Address<br>Error on 'ooo machines. |
| Preferences | None.                                                                                                                                                                                    |
| Ideas       | New layout?~~~~~                                                                                                                                                                         |

## 1.25 GhostRider/Current directory

|             |                                                                                                                                                                                                                                                                                                                                            |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Current directory.                                                                                                                                                                                                                                                                                                                         |
| Syntax      | cd <DFx:><Path>                                                                                                                                                                                                                                                                                                                            |
| Function    | Set current directory to specified. The active drive will be changed if DFx: is specified. The '.' and '..' equals current and parent directory. If you want to get to the root of the disk you will have to use the DFx: argument. You only have to use the '/' delimiters if the path contain spaces.                                    |
| History     | 051193 - First simple version. Included to humour Jes.<br>(I only have one drive :)<br><br>----- * GhostRider V1.0 changes.<br>240494 - Recoded to do UN*X like parsing of the path.                                                                                                                                                       |
| Preferences | Default active drive is configurable.                                                                                                                                                                                                                                                                                                      |
| Notes       | It may seem that this routine is a bit, er... slow! Yes, it is slow due to the fact that GR have very limited memory resources to spend on the disk routines. Therefore all disk related search in this command is based on pointers.<br>This goes for directory, delete, save and load as well since they use the same path parser. ~~~~~ |

---

## 1.26 GhostRider/Load File

|             |                                                                                                                                                                                                                                       |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Load file                                                                                                                                                                                                                             |
| Syntax      | l [<dfx:><path>name] [addr] <len>                                                                                                                                                                                                     |
| Function    | Load a file from disk to memory.                                                                                                                                                                                                      |
| History     | 051193 - Implemented.<br><br>----- * GhostRider V1.0 changes.<br>270494 - Now support UN*X style parsing. See CD~notes<br>and function for a description of the path parser.<br>260794 - The command now show progress while working. |
| Preferences | None.                                                                                                                                                                                                                                 |
| Ideas       | Support of links.~~~~~                                                                                                                                                                                                                |

## 1.27 GhostRider/Save File

|             |                                                                                                                                                                                  |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Save File                                                                                                                                                                        |
| Syntax      | S [<dfx:><path>name] [start] [end]                                                                                                                                               |
| Function    | Save memory to a disk file. You may stop the process by pressing ESC (which will not remove the file, but simply stop saving. The file header size will be corrected.)           |
| History     | 210794 - Implemented.<br>Support UN*X style parsing. See CD~notes<br>and function for a description of the path parser.<br>260794 - The command now show progress while working. |
| Preferences | None.                                                                                                                                                                            |
| Ideas       | None. ~~~~~                                                                                                                                                                      |

## 1.28 GhostRider/Disk BitMap

|             |                                                                                                                                                            |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Disk BitMap                                                                                                                                                |
| Syntax      | BM                                                                                                                                                         |
| Function    | Will display the bitmap structure of the disk in the active drive. You may have some problems with HD disks on lo-res screens as it is just a simple dump. |
| History     | 110494 - Implemented.                                                                                                                                      |
| Preferences | None.                                                                                                                                                      |

---

Ideas                      Should be an editor environment, but only if I get requests.  
 ~~~~~

## 1.29 GhostRider/Delete

|             |                                                                          |
|-------------|--------------------------------------------------------------------------|
| Name        | Delete                                                                   |
| Syntax      | del [<dfx:><path>name]                                                   |
| Function    | Will delete the specified file.<br>You can not delete directories (yet). |
| History     | 110494 - Implemented.                                                    |
| Preferences | None.                                                                    |
| Ideas       | Directory delete (also recursive.) ~~~~~                                 |

## 1.30 GhostRider/Disk format

|          |                                                                         |
|----------|-------------------------------------------------------------------------|
| Name     | Disk format                                                             |
| Syntax   | format [<dfx:>name] <q><f><i><c> <=[32 bit fill data]>                  |
| Function | Will format the specified disk. The command have the following options: |

- q            - Quick format. Only BOOT, ROOT, BM and, if specified, cache blocks are written.
- f            - Fast file system. Enable 512 bytes data blocks as opposed to the 488 bytes data blocks of OFS.
- i            - Enable international mode. This will only affect the DOS ID number in the BOOT block.
- c            - Enable directory caching. This will cause a cache block to be saved.

fill long - The longword the disk is filled with (default is \$00000000). This parameter is remembered so you need only specify it once if you are doing some heavy formatting :) (remember the '=' char!)

example: format df2:FreeDisk fc=pc+42

Cryptic, eh? 8-) This will format the disk in drive df2: with FFS and dir cache. Empty tracks will be filled with the value of the program counter plus hex 42.

You may break the formatting with ESC. This will not prevent

---

the writing of BOOT, ROOT etc. though.

History 270794 - Implemented.

Preferences None.

Ideas None.~~~~~

### 1.31 GhostRider/Read Blocks

Name Read Blocks

Syntax `rb [address] [start block] <number>`

Function Read disk block(s) from disk to address. To read a block using an absolute diskoffset in bytes, simply write:  
`rb [address] [byteoffset/512] <number>` (Hi Pontus!)

History 271292 - Working

Preferences See ReadTracks.

Ideas None. ~~~~~

### 1.32 GhostRider/Write Blocks

Name Write Blocks

Syntax `wb [address] [start block] <number>`

Function Write memory from address to disk block(s).  
 If not all sectors in a track are written, the remaining sectors will be read from disk to complete a track, which is then written to the disk.

History 300893 - Working.

Preferences See WriteTracks.

Ideas None. ~~~~~

### 1.33 GhostRider/Read Tracks

Name Read Tracks

Syntax `rt [address] [start track] <number>`

Function Read disk track(s) from disk to address.

---

History            281292 - Working.

                  ----- \* GhostRider V1.0 changes.  
                   240794 - The command did not handle HD disks correct. Fixed.

Preferences        The disksync and tracklength is configurable.

Ideas              None. ~~~~~

### 1.34 GhostRider/Write Tracks

Name                Write Tracks

Syntax              wt [address] [start track] <number>

Function            Write memory from address to disk track(s).

History              300893 - Working.

                  ----- \* GhostRider V1.0 changes.  
                   240794 - The command did not handle HD disks correct. Fixed.

Preferences        The disksync and tracklength is configurable.

Ideas                None. ~~~~~

### 1.35 GhostRider/Read RAW Tracks

Name                Read RAW Tracks

Syntax              rtr [address] [start track] <number>

Function            Read RAW disk track(s) from disk to address.  
                   Bear in mind that the raw tracks will take up more memory  
                   than tracks that are decoded.

History              300893 - Working.

                  ----- \* GhostRider V0.42 changes.  
                   060294 - The function checked BOOT and ROOT sectors  
                               before reading the data. Fixed.

Preferences        The disksync and tracklength is configurable.

Ideas                None. ~~~~~

### 1.36 GhostRider/Write RAW Tracks

|             |                                                                                                                                                                                                            |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Write RAW Tracks                                                                                                                                                                                           |
| Syntax      | wtr [address] [start track] <number>                                                                                                                                                                       |
| Function    | Write memory from address to disk track(s) without MFM encoding. Be careful when using this command since the data written to disk must be correctly formatted, otherwise the data may not be re-loadable. |
| History     | 300893 - Working.                                                                                                                                                                                          |
| Preferences | The disksync and tracklength is configurable.                                                                                                                                                              |
| Ideas       | None ~~~~~                                                                                                                                                                                                 |

### 1.37 GhostRider/Show/Change Disk Sync

|             |                                                                                                                                |
|-------------|--------------------------------------------------------------------------------------------------------------------------------|
| Name        | Show/Change Disk Sync                                                                                                          |
| Syntax      | sync <New Sync>                                                                                                                |
| Function    | Display or change the DiskSync for the active drive. This Sync is used when using the DiskDMA to read/write data from/to disk. |
| History     | 121093 - Added to monitor.                                                                                                     |
| Preferences | A default DiskSync is defined in the preferences.                                                                              |
| Ideas       | None.~~~~~                                                                                                                     |

### 1.38 GhostRider/Show/Change TrackLength

|             |                                                                                                                                                                                                                         |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Show/Change TrackLength                                                                                                                                                                                                 |
| Syntax      | tracklen<h> <New TrackLength>                                                                                                                                                                                           |
| Function    | Display or change the TrackLength for the active drive. The H-option specify what tracklength should be changed - the DD or HD length. This TrackLength is used when using the DiskDMA to read/write data from/to disk. |
| History     | 121093 - Added to monitor.                                                                                                                                                                                              |
| Preferences | A default TrackLengths are defined in the preferences.                                                                                                                                                                  |
| Ideas       | None. ~~~~~                                                                                                                                                                                                             |

---

### 1.39 GhostRider/Register Dump

|             |                                                                                                                                                                                                                                                                                                                          |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Register Dump                                                                                                                                                                                                                                                                                                            |
| Syntax      | r <[register] [value]>                                                                                                                                                                                                                                                                                                   |
| Function    | Print the contents of all register or change register contents.<br>Only D0-7, A0-7 and SR can be changed at present time.                                                                                                                                                                                                |
| History     | 261292 - Only M68000 and the two CopperRegisters.<br>051193 - Added VBR-register.<br><br>----- * GhostRider V0.22 changes.<br>160194 - Disassembly of PC included, with standard syntax.<br>(i.e. can be assembled.)<br><br>----- * GhostRider V1.0 changes.<br>090494 - It is now possible to change certain registers. |
| Preferences | None.                                                                                                                                                                                                                                                                                                                    |
| Ideas       | Support of all registers, probably split up in CPU, MMU and FPU registers. ~~~~~                                                                                                                                                                                                                                         |

### 1.40 GhostRider/Set BreakPoint

|          |                                                                                                                                                                                                                                                                                                                    |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name     | Set BreakPoint                                                                                                                                                                                                                                                                                                     |
| Syntax   | bs [address]                                                                                                                                                                                                                                                                                                       |
| Function | Set breakpoint at address if BP-table is not full. When the program-execution is continued and the program reaches this address, GhostRider will be started. When this happens, the original command will be restored so that the program can be restarted by exiting GR.<br>At present 8 breakpoints are allowed. |
| History  | 011193 - Added to the monitor.<br><br>----- * GhostRider V0.42 changes.<br>050494 - A breakpoint is now cleared if it caused entry.<br>Preferences       None.                                                                                                                                                     |
| Ideas    | The BPs should be numbered from 1 (like UNIX jobs :) to gain easy access (instead of ID'ing with the address).~~~~~                                                                                                                                                                                                |

### 1.41 GhostRider/List BreakPoints

|        |                  |
|--------|------------------|
| Name   | List BreakPoints |
| Syntax | bl               |

---



|             |                                                   |
|-------------|---------------------------------------------------|
| Function    | Print a simple table of set BreakPoints (if any). |
| History     | 011193 - Added to the monitor.                    |
| Preferences | None.                                             |
| Ideas       | The output-layout could be better.~~~~~           |

## 1.42 GhostRider/Zap BreakPoint

|             |                                                                                                                                                             |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Zap BreakPoint                                                                                                                                              |
| Syntax      | bz [address]<br>bzall                                                                                                                                       |
| Function    | Remove breakpoint from address (if set) or remove all breakpoints. This command free the BreakPoint-handler if the last breakpoint in the table was zapped. |
| History     | 011193 - Added to the monitor.                                                                                                                              |
| Preferences | None.                                                                                                                                                       |
| Ideas       | The breakpoints should be numbered from 1-MaxBPs for easy zapping.~~~~~                                                                                     |

## 1.43 GhostRider/Show/Change BP-register

|             |                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Show/Change BP-Register                                                                                                                                                                                                                                                                                                                                                                             |
| Syntax      | BReg <new TRAP number>                                                                                                                                                                                                                                                                                                                                                                              |
| Function    | Show or change number of TRAP-vector used for BreakPointing. The vector may be in the range 0-15 (decimal). The original trapvector will be saved, so that it may be restored when the breakpoints are removed. Also, the original TRAP-routine is called if a TRAP occurs at an address not in the BreakPoint table, thus allowing usage of a TRAP-vector also used in the program being debugged. |
| History     | 011193 - Added to the monitor.                                                                                                                                                                                                                                                                                                                                                                      |
| Preferences | The default TRAP-vector is set in the preferences.                                                                                                                                                                                                                                                                                                                                                  |
| Ideas       | None.~~~~~                                                                                                                                                                                                                                                                                                                                                                                          |

## 1.44 GhostRider/Define Symbol

---

|             |                                                                                                                                             |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Define Symbol                                                                                                                               |
| Syntax      | .[name]                                                                                                                                     |
| Function    | Define symbol value. Name must be an alpha-numeric sequence of maximum 8 characters.                                                        |
| History     | 261292 - Working.                                                                                                                           |
| Preferences | None.                                                                                                                                       |
| Ideas       | Dump of newly defined symbol.<br>More symbols. There is only allocated space for 32 symbols now. Let me know if there should be more. ~~~~~ |

## 1.45 GhostRider/List Symbols

|             |                                        |
|-------------|----------------------------------------|
| Name        | List Symbols                           |
| Syntax      | ls                                     |
| Function    | List defined symbols and their values. |
| History     | 261292 - Working.                      |
| Preferences | None                                   |
| Ideas       | New layout... Ideas are welcome. ~~~~~ |

## 1.46 GhostRider/Zap Symbol

|             |                                                                                           |
|-------------|-------------------------------------------------------------------------------------------|
| Name        | Zap Symbols                                                                               |
| Syntax      | zs.[name]<br>zs..                                                                         |
| Function    | Zap specific or all symbols.                                                              |
| History     | 261292 - Working.                                                                         |
| Preferences | None                                                                                      |
| Ideas       | Zap symbols from list with mouse-point'n'click method.<br>Again, ideas are welcome! ~~~~~ |

## 1.47 GhostRider/Library Information

|      |                     |
|------|---------------------|
| Name | Library Information |
|------|---------------------|

---

---

|             |                                                      |
|-------------|------------------------------------------------------|
| Syntax      | libs                                                 |
| Function    | Display exec's librarylist if the execbase is valid. |
| History     | 161093 - Added to monitor.                           |
| Preferences | None.                                                |
| Ideas       | None.~~~~~                                           |

## 1.48 GhostRider/Device Information

|             |                                                     |
|-------------|-----------------------------------------------------|
| Name        | Device Information                                  |
| Syntax      | devs                                                |
| Function    | Display exec's devicelist if the execbase is valid. |
| History     | 161093 - Added to monitor.                          |
| Preferences | None.                                               |
| Ideas       | None.~~~~~                                          |

## 1.49 GhostRider/Resource Information

|             |                                                       |
|-------------|-------------------------------------------------------|
| Name        | Resource Information                                  |
| Syntax      | resc                                                  |
| Function    | Display exec's resourcelist if the execbase is valid. |
| History     | 161093 - Added to monitor.                            |
| Preferences | None.                                                 |
| Ideas       | None.~~~~~                                            |

## 1.50 GhostRider/Resident Information

|             |                                                       |
|-------------|-------------------------------------------------------|
| Name        | Resident Information                                  |
| Syntax      | resi                                                  |
| Function    | Display exec's residentlist if the execbase is valid. |
| History     | 161093 - Added to monitor.                            |
| Preferences | None.                                                 |

---

Ideas                    None.~~~~~

## 1.51 GhostRider/Task Information

|             |                                                                                                                                                                   |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Task Information                                                                                                                                                  |
| Syntax      | tasks                                                                                                                                                             |
| Function    | Display exec's tasklists if the execbase is valid.<br>The PC-column data is only correct if the task/process is waiting because of a call to exec's Wait command. |
| History     | 161093 - Added to monitor.<br>251293 - Process' stackaddress listed.                                                                                              |
| Preferences | None.                                                                                                                                                             |
| Ideas       | None.~~~~~                                                                                                                                                        |

## 1.52 GhostRider/Port Information

|             |                                                                                                                       |
|-------------|-----------------------------------------------------------------------------------------------------------------------|
| Name        | Port Information                                                                                                      |
| Syntax      | ports                                                                                                                 |
| Function    | Display exec's portlist if the execbase is valid.                                                                     |
| History     | 161093 - Added to monitor.<br><br>----- * GhostRider V1.0 changes.<br>280794 - Task name is not printed if TASK=NULL. |
| Preferences | None.                                                                                                                 |
| Ideas       | None.~~~~~                                                                                                            |

## 1.53 GhostRider/KickMem Information

|             |                                                      |
|-------------|------------------------------------------------------|
| Name        | KickMem Information                                  |
| Syntax      | kickmem                                              |
| Function    | Display exec's kickmemlist if the execbase is valid. |
| History     | 161093 - Added to monitor.                           |
| Preferences | None.                                                |
| Ideas       | None.~~~~~                                           |

---

## 1.54 GhostRider/KickTag Information

|             |                                                      |
|-------------|------------------------------------------------------|
| Name        | KickTag Information                                  |
| Syntax      | kicktag                                              |
| Function    | Display exec's kicktaglist if the execbase is valid. |
| History     | 161093 - Added to monitor.                           |
| Preferences | None.                                                |
| Ideas       | None.~~~~~                                           |

## 1.55 GhostRider/IRQ Control

|             |                                                                                                                           |
|-------------|---------------------------------------------------------------------------------------------------------------------------|
| Name        | IRQ Control                                                                                                               |
| Syntax      | irq <[vector][new address]>                                                                                               |
| Function    | Display or change the interruptvectors.<br>Be careful when using this command. Wrong vectors may crash the system.        |
| History     | 171093 - Added to monitor.<br><br>----- * GhostRider V0.42 changes.<br>230394 - Now only handles 48 IRQ vectors (0-\$c0). |
| Preferences | None.                                                                                                                     |
| Ideas       | When working with breakpoints the original vectoraddress should be dumped, and not the address of the GR BP handler.~~~~~ |

## 1.56 GhostRider/Show/change exit-coppers

|             |                                                                                                                      |
|-------------|----------------------------------------------------------------------------------------------------------------------|
| Name        | Show/change exit-Coppers                                                                                             |
| Syntax      | cp <0/1 NewList>                                                                                                     |
| Function    | Change copperpointers to specified at exit. These registers override the cp0/cp1 register which are used by default. |
| History     | 051192 - Working, but the cp0/1 registers are copied to these two at GR-entry.                                       |
| Preferences | None.                                                                                                                |
| Ideas       | None.~~~~~                                                                                                           |

---

## 1.57 GhostRider/Show/change exit-Copper-strobe

|             |                                                            |
|-------------|------------------------------------------------------------|
| Name        | Show/change exit-Copper-strobe                             |
| Syntax      | copact <0/1>                                               |
| Function    | Specify what Copper to strobe at exit. Default is Copper0. |
| History     | 051192 - Working.                                          |
| Preferences | None.                                                      |
| Ideas       | None.~~~~~                                                 |

## 1.58 GhostRider/Show/change entry-Copper-search-offset

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Show/change entry-Copper-search-offset ;-)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Syntax      | copoffset <offset>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Function    | <p>When entering the GhostRider the ChipMemory is scanned for the active copperlists. To speed things up a bit, only the first entry does a full search. At following entries, the immediate area around the previous copperlist will be scanned. If this search fails the full search is made again. This command is used to specify how big the searchoffset should be. If the copperlist is not changed during programexecution, you may want to reduce this offset to 2 for a fast entry. A value of 0 will force a full search, or if your system supports hardware mapping, the last cprl/2lc-write will be used.</p> <p>You may force a full search at NMI-entry by pressing the right mousebutton when entering.</p> |
| History     | <p>051192 - Working.</p> <p>----- * GhostRider V0.22 changes.</p> <p>040193 - At systementry the copperpointers are copied from the Graphics.library base.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Preferences | None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Ideas       | None.~~~~~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

## 1.59 GhostRider/Calculator

|          |                                                             |
|----------|-------------------------------------------------------------|
| Name     | Calculator                                                  |
| Syntax   | ? [expression]                                              |
| Function | Calculate expression and print result in dec/hex/ASCII/bin. |

---

History            261292 - Working, but only with simple values (no calculation until GetValue is finished)  
                     310193 - Finished the GetValue-routine, utilizing a RPN algorithm. Now only the power operator is to be made.

Preferences       None.

Ideas              None. ~~~~~

## 1.60 GhostRider/Entry CLS

Name              Entry Clear Screen

Syntax            cls

Function          Change and show setting of "Clear screen at entry".

History           ----- \* GhostRider V1.0 changes.  
                     270794 - cls operation changed.

Preferences       The default setting may be specified in the config.

Ideas              None. ~~~~~

## 1.61 GhostRider/Dump AddressTable

Name              Dump AddressTable

Syntax            at

Function          Dump list of addresses in AT. This buffer keeps the result from the last hunt/compare operation. Currently this buffer holds 32 addresses. The hunt and compare operations break when this buffer is full, but can be continued if wanted. This buffer gives the possibility to study the result of an hunt/cmp operation without writing all the found addresses on

appropriate      a paper and then examining one address at a time. For fast check of all the found addresses simply enter the editor and use the AT-browse shortcuts (Amiga+</,./>).

History            281292 - Added to monitor.

Preferences       None.

Ideas              If hunting/Comparing gives many addresses a bigger buffer may be appreciated... Let me know. ~~~~~

## 1.62 GhostRider/Resume Command

|             |                                                                                                                                                                                    |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Resume Command                                                                                                                                                                     |
| Syntax      | res                                                                                                                                                                                |
| Function    | Resume a previously broken hunt/compare command.                                                                                                                                   |
| History     | 250193 - Added to monitor.                                                                                                                                                         |
| Preferences | None.                                                                                                                                                                              |
| Ideas       | Since the fill and hunt/cmp commands share start/stop-address buffers, resuming after a fill is not possible. I guess this should be fixed... And it will be (patience :)<br>~~~~~ |

## 1.63 GhostRider/Workspace control

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Workspace control.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Syntax      | work <chip> <backup/0>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Function    | <p>Display/change workspace location in chip memory and backup area. The address, chip, must be located in chip memory, giving enough space above for the workspace. The address, backup, may be located in any memory type or even be set to NULL. In the latter case there will not be made backup of the workspace. If you wish to use the debugger you will have to disable the backup.</p> <p>The command checks for overlapping areas (not allowed), VBR and GR conflict.</p> <p>Some day this function may become obsolete, given that I get around to do the Workspace-controller; access to the chipmem where the workspace is located will be redirected to the bufferarea.</p> |
| History     | <p>181093 - Added to monitor.</p> <p>----- * GhostRider V1.0 changes.</p> <p>180494 - It is now possible to control both workspace and backup location.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Preferences | The default workspace location may be set in the preferences.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Ideas       | WorkSpace-controller, see function description.~~~~~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

## 1.64 GhostRider/Display GR version string

|      |                            |
|------|----------------------------|
| Name | Display GR version string. |
|------|----------------------------|

---



|             |                                                                                |
|-------------|--------------------------------------------------------------------------------|
| Syntax      | ver                                                                            |
| Function    | Display GR version string. Also what source# this revision was assembled from. |
| History     | 170194 - Added to monitor.                                                     |
| Preferences | None.                                                                          |
| Ideas       | None.~~~~~                                                                     |

## 1.65 GhostRider/Set exit display-mode to PAL/NTSC

|             |                                                                                                                                                                                                                                    |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Set exit display-mode to PAL/NTSC.                                                                                                                                                                                                 |
| Syntax      | pal/ntsc                                                                                                                                                                                                                           |
| Function    | This command puts \$0020/\$0000 in the CUS list at offset \$01DC=BeamCon0. This will force the screenmode to PAL/NTSC on machines with ECS+ Agnus/Denise. The default setting of PAL/NTSC is controlled by the preference setting. |
| History     | 010294 - Added to monitor.                                                                                                                                                                                                         |
| Preferences | NTSC flag of preferences sets default setting.                                                                                                                                                                                     |
| Ideas       | None.~~~~~                                                                                                                                                                                                                         |

## 1.66 GhostRider/Screen Mode

|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name     | Screen Mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Syntax   | mon <0-4>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Function | <p>Change screen mode to one of five possible settings. The default settings consist of:</p> <p>PAL:High Res (29 lines)<br/> PAL:High Res Lace (51 lines)<br/> NTSC:High Res (23 lines)<br/> NTSC:High Res Lace (46 lines)<br/> MSCAN:Productivity (51 lines) (my default :^)</p> <p>The default chosen screen mode is PAL non-lace. In the preference editor you may control <u>both</u> default chosen screen mode <u>and</u> the definition of the five modes. The default definitions (I believe) would suite most of the users. You might want to change the number of text lines, though.</p> |
| History  | 200794 - Implemented.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

Preferences      Full control of screen mode definitions and selection.

Ideas            None. ~~~~~

## 1.67 GhostRider/Display/change exit-CustomRegister-data

Name            Display/change exit-CustomRegister-data.

Syntax          cus <CR>            Display table or specific CR-data.  
                  cus [CR][data]        Change CR-data.  
                  cusz [CR]            Zap CR-data.  
                  cuszall            Zap table.

Function        Display/change/zap the data stored in the custom-registers (CR) at exit. '----' implies un-defined data; that is, the CR will not be changed at exit. This command give users with a non-mapping system the possibility to fix CRs trashed by the GhostRider.

History        051193 - Added to monitor.  
                  ----- \* GhostRider V0.22 changes.  
                  010294 - CUS data was not written properly at exit. Fixed.

Preferences    None.

Ideas           This should be an editor-like environment.  
                  There will be another way of doing this; by passing a  
 pointer        to a list build like a copper list, which will then be  
                  "execute" at exit. ~~~~~

## 1.68 GhostRider/Display current date and time

Name            Display current date and time.

Syntax          date

Function        Display current date and time. This function is not used for anything specific at the moment. It is implemented for usage by the disk system, which will need to datestamp files. The ReadBatteryClock-code is made by Carnivore/BeerMacht.

History        141193 - Added to monitor.

Preferences    None.

Ideas           Maybe I will implement a running clock and an alarm?!?  
 ~~~~~

## 1.69 GhostRider/Deplode

|             |                                                                                                                                                                                                                                                                                                     |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Deplode                                                                                                                                                                                                                                                                                             |
| Syntax      | deplode [addr of imploded data] <dest>                                                                                                                                                                                                                                                              |
| Function    | Depack Imploded data to address of original data or destination if specified. The affected area will be calculated and you will be asked to confirm the deplosion. This kind of data may be produced with the FileImploder by Albert-Jan Brouwer. Check out PD-boards/Aminet for this great packer. |
| History     | 181093 - Added to monitor.                                                                                                                                                                                                                                                                          |
| Preferences | None.                                                                                                                                                                                                                                                                                               |
| Ideas       | None.~~~~~                                                                                                                                                                                                                                                                                          |

## 1.70 GhostRider/Depack PP data

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Depack PowerPacked data                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Syntax      | depack [addr of PP'ed data] [end of PP'ed data] [dest]                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Function    | Depack PowerPacked data to destination. Because the PP'ed data does not contain length-information (and depacks backwards), you will have to know the endaddress of the packed data. This is an awkward way of operation, but I see no way around it... You will be asked to confirm the depacking, when the affected area has been calculated. This datatype can be produced with Nico François' incredible PowerPacker available both in PD and commercial versions. |
| History     | 181093 - Added to monitor.                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Preferences | None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Ideas       | None.~~~~~                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

## 1.71 GhostRider/Set/Free NMI-vector

|          |                                                                                                                                                            |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name     | Set/Free NMI-vector.                                                                                                                                       |
| Syntax   | nmi                                                                                                                                                        |
| Function | * Set the NMI-vector to the GhostRider NMI-handler. The original value will be saved for later restore.<br>* Restore the NMI-vector to the previous value. |
| History  | 051193 - Added to the monitor.                                                                                                                             |

---

----- \* GhostRider V0.22 changes.  
 280194 - Merged nmion and nmioff code. Now switches between  
 on/off with the same command.

Preferences      None.  
 Ideas            None.~~~~~

## 1.72 GhostRider/Dis/enable NMI-ROM-entry

Name            Dis/enable NMI-ROM-entry.  
 Syntax          nmirom  
 Function        Dis/enable NMI-entry when the CPU is working in ROM.  
 History        281294 - Added to the monitor.  
 Preferences    Default setting is configurable.  
 Ideas           None.~~~~~

## 1.73 GhostRider/ColdCapture patcher

Name            ColdCapture patcher.  
 Syntax          cold  
 Function        Dis/enable reset-entry by de/patching the Cold/CoolCapture  
 vectors. This makes the GR resident.  
 The monitor is called with the ColdCapture. At this time  
 very few things have happend, which improves your chances of  
 finding the memory untouched. You will find that the system  
 is not up'n'running -> don't mess around with the stack.  
 The NMI and resident setup are carried out with a call from  
 the CoolCapture. At present you can not prevent the NMI  
 setup, but this may be a preference setting later on.  
 At reset the screen will (should :) flash one of three  
 colors: RED - GR memory could not be allocated (just a  
 warning... No action taken!). GREEN - GR memory allocated.  
 BLUE - When you have killed/de-colded GR this color will  
 tell you that the cold/cool vectors are NOT set.  
 History        311294 - Added to the monitor.  
 Preferences    Reset-entry qualifier.  
 Ideas           None.~~~~~

## 1.74 GhostRider/Enable Internal Tracing

|             |                                                                                                                                                                                                    |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Enable Internal Tracing                                                                                                                                                                            |
| Syntax      | traceon                                                                                                                                                                                            |
| Function    | Enable GhostRider internal tracing. This function is only usable for pinpointing specific bugs in GR. The average GR user will not need this feature since only a remarkable slowdown is achieved. |
| History     | 311093 - Added in an attempt to figure out what function is trashing the stack from time to time. Basically a MungWall around the stack, but open for other debug checks in the future.            |
| Preferences | None.                                                                                                                                                                                              |
| Ideas       | Still needs to make a proper error-report. Now a simple trace-error is made.~~~~~                                                                                                                  |

## 1.75 GhostRider/Disable Internal Tracing

|             |                                                                        |
|-------------|------------------------------------------------------------------------|
| Name        | Disable Internal Tracing                                               |
| Syntax      | traceoff                                                               |
| Function    | Disable GhostRider internal tracing. See TraceOn for full description. |
| History     | 311093 - Added to the monitor.                                         |
| Preferences | None.                                                                  |
| Ideas       | See TraceOn.~~~~~                                                      |

## 1.76 GhostRider/Routine Call

|             |                                                                                                                                  |
|-------------|----------------------------------------------------------------------------------------------------------------------------------|
| Name        | Routine Call                                                                                                                     |
| Syntax      | J [address]                                                                                                                      |
| Function    | Close GhostRider down and call routine at specified address. When the routine is returning (with a RTS) GhostRider will re-open. |
| History     | 020193 - Added to the monitor.                                                                                                   |
| Preferences | None.                                                                                                                            |
| Ideas       | None.~~~~~                                                                                                                       |

---

## 1.77 GhostRider/Exit after Routine Call

|             |                                                                                                                               |
|-------------|-------------------------------------------------------------------------------------------------------------------------------|
| Name        | Exit after Routine Call                                                                                                       |
| Syntax      | X [address]                                                                                                                   |
| Function    | Close GhostRider down and call routine at specified address. When the routine is returning (with a RTS) GhostRider will exit. |
| History     | 051193 - Added to the monitor.                                                                                                |
| Preferences | None.                                                                                                                         |
| Ideas       | None.~~~~~                                                                                                                    |

## 1.78 GhostRider/Exit

|             |                                                                           |
|-------------|---------------------------------------------------------------------------|
| Name        | Exit                                                                      |
| Syntax      | x <address>                                                               |
| Function    | Exit GhostRider. Continue frozen program or reset procedure (at address). |
| History     | 261292 - Working (Heavy code :-)<br>020193 - Added exit-address support.  |
| Preferences | None.                                                                     |
| Ideas       | Mad idea: xc - skip boot-procedure and jump directly to CLI.~~~~~         |

## 1.79 GhostRider/Kill and Exit

|             |                                                                                                                                                                              |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Kill'n'Exit                                                                                                                                                                  |
| Syntax      | kill <address>                                                                                                                                                               |
| Function    | Kill GhostRider and exit (to address). This command will disable reset/nmi entry.                                                                                            |
| History     | 261292 - Working (Even heavier code :-)<br>020193 - Added exit-address support.<br><br>----- * GhostRider V0.22 changes.<br>010294 - Now also kills ColdCapture reset-entry. |
| Preferences | None.                                                                                                                                                                        |
| Ideas       | None.~~~~~                                                                                                                                                                   |

---

## 1.80 GhostRider/Preferences

Among other things, GhostRider is special because of it's many preferences, which give the user the possibility of configuring GR to his (or her) needs.

Please consult the GRPrefEd.guide for a full explanation of the preference settings in GhostRider. ~~~~~

## 1.81 GhostRider/Error Messages

ErrorMessages sorted by age (implementation):

Syntax error!

The syntax of the input line is wrong. It may also be wrong syntax in a math expression.

Undefined symbol!

Reference to an undefined sybol. ("ls" will list defined symbols)

Illegal addressing mode!

Assembler: Used addressing mode is not valid for the given mnemonic.

Illegal size!

Assembler: Specified size is not valid for the given mnemonic/addressing mode.

Unknown mnemonic!

Assembler: Not a M68k family mnemonic.

Unexpected end of line!

The routine parsing the input expected more data.

Unknown command!

Not a command. Not one GR knows about anyway...

No disk in selected drive!

Obvious.

Not all sectors found!

When reading from disk, the decoding routine keeps track of which sectors have been decoded. You will get this error if the loaded track did not contain 11/22 sectors.

Invalid Sector ID!

An Amiga DOS disk is identified with a \$FF in the sectorheader. If this is not the case, GR can't read the disk.

Track contains illegal sector number!

You will see this message if the track contain illegal sectornumbers (i.e. not 0-10/0-21).

Data CheckSum error!

The checksum of one of the blocks is wrong. This is an error on DOS level, not on trackdisk level.

---

Illegal block number!

You have specified an illegal block number. Only use 0-1759/0-3519.

Symboltable is full!

You ran out of symbol space... Tough luck. If you really need more space, let me know.

Illegal symbolname!

Use only alpha-numeric letters for symbolnames (0-9, a-z, A-Z)

Illegal separator!

You may separate (most) arguments with space or comma.

Illegal track number!

Only tracks 0-159 are allowed.

Illegal length!

Obviously a negative or zero length is no good.

Illegal area!

If start of area is a higher compared with end of area.

No hunt data!

If no hunt data is specified.

Not found!

Hunt data was not found.

Jump table full!

Editors nest jumps so that you may return to a previous address. Use Amiga+z to zap (empty) the jump table.

Jump table empty!

You tried to get an address from the empty jump table.

No command to resume!

Either you have not broken a resumable command, or the resume-data have been deleted.

Unbalanced parantheses!

The math expression have unbalanced parantheses.

No value!

The argument parser expected a value but did not find one.

Unknown datatype!

GR know quite a few datatypes, but apparently you have not had the chance to look at them... Until now : Data~Types.~c/o~Input

Illegal register number!

Assembler: Say Doc, I thought you knew your M68k registers. I know it would be nice with, say, 32 of each register type, but please stick to D0-7 and A0-7 :)

Illegal Index Register!

Assembler: For all I know you can use D0-A7.

---



Invalid index scale!

Assembler: Only use scales 1,2,4,8.

Data too large!

Assembler: The size of the immediate data you tried to use exceeds your specified operand size.

Only one base displacement allowed!

Assembler: Obvious.

Only one outer displacement allowed!

Assembler: Obvious.

Only one index register allowed!

Assembler: Obvious.

Illegal bitfield!

Assembler: Consult your Motorola manual on this, somewhat, wild subject. I think I got it right ;^)

Illegal condition code!

Assembler: Yes, I know it would be nice with a BOJITUHRTTP branch (OnlyJumpIfTheUserHasRegisteredTheProgram), but this here assembler only knows what he's been told, ya know!

Address must match that of first half!

LineAssembler: When assembling long commands the address of both lines must be equal (this is a spooky subject... I'm not even sure this works as supposed :)

Could not find other half!

LineAssembler: Apparently you forgot to enter the first half of whatever command you wanted to assemble.

Select area first!

Editors: Select area before you try to use any of the functions that require a marked area (or you'll get this message).

Disk is writeprotected!

Disk: Obvious.

No fill data!

Hey! GR may be a very userfriendly program but there is no way it can figure out what data-string you want to use! (It may become a feature in later versions of GhostRider, though. Depends on my ability to figure out how the BLAZEMONGER INC. guyz do it... I've been told they have such a routine... I'm just not in the mood for a chat with their "CS" that's all!)

Areas overlap!

But they do! Have a look for yourself! :)

Unknown drivetype!

Disk: The identification-code shows the drive is a unknown type (to me that is. You would probably know what stuff you have hooked up :)

That drive is not in your system!

---

Disk: When trying to access a drive GR kinda expects the drive to be there... But since I programmed the GR, and I know that types like you (yes, YOU) might, just might, mess around with GR, I included this checker...

ExecBase Corrupt. Command not allowed!

Trying to do system-stuff on a dead system ain't too bright...

Unfortunately the only way I could figure out how the system is doing is by checking the exec base..... And that, I might add, isn't too bright (two things of a kind :).

Not a valid interrupt vector (\$00-\$bc)!

GhostRider only give control of 48 interrupt vectors.

Not a valid address! Must be in chip!

Work: Apparently some things need to be in Chip, and you just tried to move them to Fast memory.

Location conflicts with VBR!

Work: Workarea conflicts with VBR memory. Use another area.

Location conflicts with GR!

Work: Workarea conflicts with GR memory. Use another area.

Missing compression ID!

Depackers: Depackers need ID-words in the data to run.

All BreakPoints used!

BP: No more space. Try deleting some of the other breakpoints or send me a request for a bigger BP-buffer (make sure to use the magic word... :)

No BreakPoints set!

BP: No sense in zapping non-existing entries.

Address already have BreakPoint!

BP: Double breakpoints are not allowed (no sense in having it really).

No BreakPoint at this address!

BP: Specific BPzapping on a non-existing entry.

Not a valid TRAP number (0-15)!

BP: BreakPoints are made with the TRAP #n command - n must be 0-15.

Illegal drive. Must be 0-3!

Disk: The Amiga only support 4 drives.

Illegal Copper. Must be 0/1!

The Amiga only has two copper registers (0 and 1).

Illegal search-offset (0<x<MaxChip,even)!

Copper search-offset must be an even number, not bigger than the size of MaxChip.

Illegal custom-offset (0<x<\$200,even)!

Do you have an AAA machine? No? Then rest assured. You only need control of \$dff000-\$dff1fe (Only complaints from Dave Haynie accepted :)

---

Corrupt DirCache block!

Disk: Directory routine found a corrupted DirCache block.

You must specify a filename!

Disk: Filename must be specified in ""/' markers.

Filename is corrupt!

Disk: Filename is too long/missing end marker.

File not found, error!

Disk: Could not find specified file on this disk. You may also see this message if a specified directory does not exist.

Width must be \$02-\$50!

Peeker: Displaywidth must be \$02-\$50.

No sector header present!

Disk: The track does not contain the specified sync-mark.

Could not set breakpoint!

BP: The breakpoint was not succesfully set (i.e. if set in ROM space).

Not a directory!

Disk: You tried to access a file like a directory (used in a path/CD whatever)

No parent directory!

Disk: Current directory have no parent.

Not a file!

Disk: You tried to access a directory like a file.

Not enough disk space!

Disk: There is not enough free space on the disk to hold the file. Please remember that a file also need blocks to keep track of the data blocks.

Track not found!

Disk: The sector header also contain a tracknumber. If this tracknumber does not match the position of the head, you will see this error (a possible seek error).

Not a DOS disk!

Disk: The boot block does not hold a correct DOS identifier.

Incorrect header checksum!

Disk: The header checksum of a sector was wrong.

Incorrect sector checksum!

Disk: The data checksum of a sector was wrong. ~~~~~

## 1.82 Future

Still many things to be done! See the command-documents for expansion ideas for the individual command.

---

Here are my current plans:

- Entry with hot-keys from WB/CLI. Allowed harddisk access in this entry mode.
- Place cursor at problematic argument at SYNTAX ERROR.
- Proper control of the backup-memory. Access to workmemory should be redirected to the buffer.
- MMU programming. Setup memory protection, relocate memory etc.
- Screen dump to printer.
- Only NMI-entry if in pre-specified area, user/super-mode etc.

But I also need YOUR ideas!~~~~~

## 1.83 Acknowledgments

Morten Skov for the patience during the design of the hardware, and of course for the production of the final product: GhostBoard.

Jens Pedersen for making the first~beta~prints.

Carsten Niemeier for good ideas (I hope there is more to come?!?)

Jesper Rou Larsen for~beta~testing the hardware and for giving me the opportunity of testing GhostRider on an 'o4o machine.

Jes Sørensen for good ideas and patience.

Pontus Berg for being the first to give financial support by buying the GhostBoard. Also thanks for your letters; they are a tremendous moral support for a lonely programmer :-)

John Girvin for being the first registered GhostRider user - I hope you are breaking the ice for others (or the water? Can I call you Moses? ;)

NEiL/FairLight for giving me the opportunity of testing the GR on an A1200, GR distribution and for being a nice pal.

Anders Bendtsen for~beta~testing the hardware and help with printing of the adverts for the Party II '92.

Lars Ole Dybdahl for moral support (Hi LO! Guez u didn't c this 1 comming?:)

Carnivore/BeerMacht for inspiration through BeerMon. Too bad you don't work on it anymore. Credits must also be placed at this slot for the battery-clock code which I stole from the BeerMon code.

Nico François for the ReqTools and PowerSnap... Couldn't live without 'em.

Jan van den Baard for the GadToolsBox.

Amiga for being a GREAT computer. (Even though Commodore Marketing do what they can to kill it!)

Commodore for the 2.04+ ROMs, AmigaGuide and ToolMaker.

Motorola for the best microprocessors in the world.

---

Danaelec for supporting me with manuals about the M68k family.

And of course to all the people showing interest in the GB/GR project at The Party II/III.

.oO Registered GhostRider users Oo.

John Girvin/N. Ireland (20\$US)

.oO GhostRider Beta Testers Oo.

Pontus Berg: A2000 (ECS/DD), 1MB Chip, 4MB Fast, ?MB HD, Kick 37.175,  
WB ?.?, external drive(DD), GhostBoard MK I. (NMI)

Bjørn Breese: A1200 (AGA/DD), 2MB Chip, 120MB HD, Kick 39.106, WB 3.0.

John Girvin: A1200 (AGA/DD), GVP A1230 (40MHz 'o3o+'882), 2MB Chip,  
4MB Fast, 120MB HD, Kick 39.106, WB 3.0. (NMI)

Jesper Skov: A4000/'o3o (AGA/HD), 2MB Chip, 8MB Fast, 420MB HD,  
Kick 39.106, WB 3.1.

Jes Sørensen: A2000 (ECS/HD), A2630 (25MHz 'o3o+'882), 1MB Chip, 6MB Fast,  
289MB HD, Kick 39.106, WB 3.1. (NMI) (GB MK I) ~~~~~

## 1.84 GhostRider Disclaimer

The author cannot be held liable for the suitability or accuracy of this manual and/or the program(s) it describes. Any damage directly or indirectly caused by the use or misuse of this manual and/or the program it describes is the sole responsibility of the user her/him self. ~~~~~

## 1.85 GhostRider/GhostBoard Ordering

.oO GhostRider Oo.

GhostRider is as of the release of version 1.0 placed in the Public Domain. There is no missing commands or crippled operation. However, if you use it I would appreciate it if you would register and pay for some of the many hours I have been working on GhostRider. Of course you will also support further development by doing so. I guess this is generally known as the Shareware concept - but don't let that frighten you ;)

The GhostRider registration fee is:

Danish currency : 100Dkr

German currency : 30DM  
American currency : 20US\$

And if you send more money, I won't hold it against you :)

I only accept the listed currencies, payment by cash and please remember:

- \* Only send notes. No coins!
- \* Wrap the notes in (dark) paper!

My address is :

Until 01.09.94

Jesper Skov  
Signalvej 9, 2tv  
DK-9000 Aalborg  
Denmark

01.09.94 - 01.11.94

Jesper Skov  
Østre Havnegade 1  
DK-9000 Aalborg  
Denmark

01.11.94 - +3 years

Jesper Skov  
Sallingsundvej 47 st th  
DK-9220 Aalborg Øst  
Denmark

(I know it is a mess, sorry)

Or if you want to ask me about something and want a fast reply, try:

jskov@iesd.auc.dk

Please use the registration form if you choose to register GhostRider. Thank you.

GhostRider is shareware, Copyright © 1992-1994 Jesper Skov

Oo. GhostBoard .oO

Not available. Still have to do the DRAM-interface and print layout. Logic is working, though.

Yeah, right.... I never seem to get around to this... I have found a new problem: No A1200 market :( - most (serious) users have used the trap-slot for some expansion device, so I won't spend money on developing an A1200

version.

Also, the ZorroIII does not support NMI - Damn! I could start supporting BERR, but this baby makes a terrible stack mess on the 'o2o+', and it is not always possible to continue program flow...

Well, since I have not spend too much (active) time on these two problems, GhostRider have grown and now pretty much circumvent the problems in different ways: Resident entry and use of the ghostrider.library - you still get more control if you have a NMI button, though.~~~

## 1.86 GhostRider History

GhostRider V1.0 updated from GhostRider V0.42. Released on 15.08.94.

```
~General/Misc.~ Bugs fixed/New features.
~~~~~Input~~~~~ Bug fixed.
~~~~~Editor~~~~~ New features.
~Register~Dump~ New features.
~~~Port~info~~~ Bug fixed.
~~Screen~Mode~~ New command.
~~Current~Dir~~ New operation.
~~~~Delete~~~~~ New command.
~~~Load~Data~~~ New feature.
~~~Save~Data~~~ New command.
~~Disk~BitMap~~ New command.
~~Read~Tracks~~ Bug fixed.
~Write~Tracks~~ Bug fixed.
~~Disk~Format~~ New command.
~~Disassembler~ Bugs fixed.
~~~Dis-Editor~~~ Bugs fixed/New features.
~~~HEX-Editor~~~ Bugs fixed/New features.
~~ASCII-Editor~ Bugs fixed/New features.
~~~~~cls~~~~~ New operation.
~~~~~Work~~~~~ New feature.
```

Update ideas/bugs found by:

Bjørn Reese/Denmark  
Jes Sørensen/Denmark  
Yours truly/Denmark

GhostRider V0.42 updated from GhostRider V0.32. Released on 11.04.94.

```
~General/Misc.~ Bugs fixed/New features.
~~~Assembler~~~ Bugs fixed.
~~Disassembler~ Bugs fixed.
~~~Dis-Editor~~~ Bugs fixed/New features.
~~Peek-Editor~~ New features.
~~Break~Point~~ Bug fixed.
~~~~IRQ~Info~~~ New feature.
~~~~~Date~~~~~ Doc on old feature.
~~~Disk~Info~~~ Bug fixed.
```

Read~RAW~Tracks Bug fixed.

Update ideas/bugs found by:

Bjørn Reese/Denmark  
John Girvin/Northern Ireland  
Pontus Berg/Sweden  
Jes Sørensen/Denmark  
Yours truly/Denmark

GhostRider V0.32 updated from GhostRider V0.22. Released on 04.02.94.

~General/Misc.~ Bugs fixed/New features.  
~~~~~Editor~~~~ Bugs fixed/New features.  
~~Disassembler~ Bugs fixed/New features.
~~~Dis-Editor~~ New features.  
~~Peek-Editor~~ Bugs fixed/New feaures.  
~~~~~Kill~~~~~ New feaures.  
~~~CR~Control~~ Bugs fixed.  
~~~~~NMI~~~~~ Changed operation.  
~~~~~PAL/NTSC~~~ New command.  
~~~~~Hunt~NOT~~~ New command.  
~~~~~NMI-ROM~~~~~ New command.  
~~ColdCapture~~ New command

Update ideas/bugs found by:

Pontus Berg/Sweden  
Jes Sørensen/Denmark  
Yours truly/Denmark

GhostRider V0.22 updated from GhostRider V0.2. Released on 21.01.94.

~General/Misc.~ Bugs fixed/New features.  
~~~~~Input~~~~~ Bugs fixed/New features.  
~~~Assembler~~~ Bugs fixed/New features.  
~~Disassembler~ Bugs fixed/New features.  
~~~Dis-Editor~~~ Bugs fixed/New features.  
~~~HEX-Dumper~~~ Bugs fixed/New features.  
~~~HEX-Editor~~~ Bugs fixed/New features.  
~~ASCII-Dumper~~ Bugs fixed/New features.
~~ASCII-Editor~~ Bugs fixed/New features.
~Register~Dump~ New features.
~Copper~Offset~ Bugs fixed/New features.
~~Peek-Editor~~ New command.
Compare~Memory~ New command.
~~~~~Version~~~~~ New command.

Update ideas/bugs found by:

Pontus Berg/Sweden  
Jes Sørensen/Denmark  
Yours truly/Denmark ~~~~~~

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## 1.87 GhostRider General/Miscellaneous History

### Features of GhostRider V1.0:

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\* GhostRider is now shareware. See the ordering section for instructions on how to register.

290494 - Did you ever try starting a "system-hostile" program with a hot-key? The annoying result is often that the system don't see the release of the hot-key(s). Since GR now can be started by hot-key and by nature is a SOB when it comes to being friendly with the system, I have added a (highly illegal ;-)) hack which will clear the matrix of the keyboard.device. From what I can see, this works with Kickstarts 37.xx-40.xx. Nevertheless you may disable this function from the preference editor.

Oops. 290794; I just found a puzzle. This fix does not work 100%. If any disk routines have been used and the disk have not been removed prior to leaving GhostRider this fix fails... You go figure... And so will I. Hope to solve it soon. Until then, just make sure to pop the disk if you have used it.

010494 - Finished ghostrider.library version 37.1. This library will do the interfacing between GR and the system/you. Please consult the autodocs for documentation.

030794 - If GR is entered by the system the graphics function LoadView will be used to restore display at exit.

- GR's memory usage have been reduced by placing the (lovely :) picture in the screen buffer (it used to have separate mem).
- The 'o4o was reported to be a 'o7o in the info text. - Not that I think anybody have ever noticed, coz' GR crash on the 'o4o. Why? Your guess is as good as mine (no selfmodifying code). I did find that the CPU identification routine I use crash if the data cache on the 'o4o is enabled. Figure I have some coding to do - except it's damn hard to do without an 'o4o based machine. Most likely it will work when you read this, coz' GR V1.0 will not be released until the bug is fixed.
- You may now control if the screen should be cleared at entry or not by preferences.

190794 - The CACR register was not restored at exit. Fixed.

200794 - Removed the Nice Scroll preference flag. Now all copper updates are made in the VBlank area.

- Bus Error now have a separate handler. At this time functions which generate a bus error is simply aborted. I will implement some Gary control later on (inspired by BeerMon).

210794 - Added very strict (and correct :) disk timings (like side select delay.)

230794 - The keyboard handshake and delay/repeat timing is now done with the CIA timer. The "resolution" of the delay/repeat timing is doubled so you may want to adjust the settings.

240794 - Disk related errors now include the trackdisk error number (TDERR) so you may find a description of the problem in whatever literature you own.

- Added control of sector header checksum in the disk decoder.
- The native disk routines have been improved a bit to give better operation.

260794 - Added track display in header when disk is accessed. The display

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- needs a little explanation; First you will see a single letter which identify the current operation R(ead)/W(rite)/S(eek). Then follow cylinder and side information. Also when a track is read, you will see a line of '-' chars being replaced with '+' chars in the order the sectors are found on the disk. This last display is only some "eye cream" I added for... er, well, it looks nice :) But because the sectors are loaded faster than the sector display can be updated, it will be "old" information and may appear while the drive is seeking or writing... As I said - pure eye cream :)
- GhostRider now have all planed disk commands and support DOS0-5.
  - 280794 - If the cop0 list was not found at entry, it will not be set at exit.
  - The hunt/hunt\_not/fill now accept a single data nibble, which is made into a byte (high nibble always NULL).
  - ExecBase now need to be on an even address to be valid.
  - When the reset entry of GR is available (\$f00000/cold), GR will always be invoked if the system had a GURU. I'd like to add text explanations to the horrible numbers, but not until someone (registered :) ask me to - there is so many error IDs!
  - 290794 - The DTACK time out mechanism of the A3000/A4000 Gary chip is now changed at entry, so that access to non mapped memory will merely result in garbage data (that is, no Bus Error). This is the normal behavior of the other Amiga machines.  
Code for this hack found in Carnivore's BeerMon (it's not more than a move command, but I would not have thought it to be possible if I had not seen it in the BeerMon docs.)
  - 040894 - When the copper waits for a line >256 it now use one of two horizontal beam positions, at line 255. The HiRes bit of bplcon0 is used to determine which of the two values (\$71 and \$E1) should be used. If you use a screen mode which does not have a standard horizontal position you may get in trouble here. Let me know, and I will include a ">256 lines Horizontal waiting position" in the screen mode definitions.
  - 100894 - The colors of multisync ("super H-Res") resolutions on ECS machines are now encoded correct. The header colors will be the same as the screen colors, though.
  - 140894 - GhostRider is now split into two hunks - CODE and CHIP. This makes it possible to get better control of the workspace and backup area.  
Later on (when I get around to do it that is) the bit of non-zero data in the CHIP hunk will be compressed and the hunk type will be changed to BSS - this will cut ~60KB of the executable.

#### Features of GhostRider V0.42:

-----

- 060294 - Trackloader would hang if the track did not contain the specified syncmark. Now it will timeout after 400 ms and flash the screen (red).
  - Sync and tracklength was reset at each entry. Now it is only set at startup.
  - 050394 - The CPU cache settings was trashed at exit. Fixed.
  - 230394 - Fixed bug in internal exception handling.  
Added GRBase and PC offset from GRB in the exception-text.
  - 240394 - Added some extra internal debugging facilities.
  - 030494 - Internal BusError handling improved. Because the AGA-generation Amigas have (better) BusError checking logic, access to non-mapped
-

memory cause a `BusError`. This problem can only be solved in one way; by letting the CPU continue without the requested data. Therefore 'olo+ CPUs will call a BE handler that will ask the CPU to continue (I have only tested it on the 'o3o) after flashing the screen (green). Still, this takes some (quite a lot, actually) time so don't do too much ASCII dumping from unmapped memory (this will not trash the machine, but it will probably hang long enough for you to learn Danish from scratch (hint: that's a lot more than 42 seconds :))

- 050494 - The command history is no longer cleared at entry.
- The BreakPoint handling was cleaned up a bit and prepared for system usage (`ghostrider.library`).

#### Features of GhostRider V0.32:

- 210194 - Reset-entry would crash stack at exit. Fixed.
- 240194 - Only the area 0-\$40000 was scanned for copperlists. Fixed.
- 270194 - The fill-function in the editors now do .w/.l fill operations.  
- Editors HELP text now shared -> saved 1.5k.
- 280194 - Added register dump on CTRL+HELP. This will show register contents on the two first lines of the screen. When releasing the keys, the original text will be reprinted.
- 310194 - Reset-entry stackpointer wrong on 'olo+ machines. Fixed.
- 010294 - GR now runs on AGA machines (using 15kHz screens anyway). NTSC is also supported better now. You will have to be carefull when using NTSC though; if the screen is higher than the display you may very well crash GR. See the PAL/NTSC commands for further information on this subject.

#### Features of GhostRider V0.22:

- 040194 - Header-update flag was never cleared. Fixed. Now flags are only updated if needed.
- 160194 - Editors would not accept space before address. Fixed.
- 170194 - Cleaned help-screens up a bit.
- 180194 - GhostRider V0.2 did not run on 'ooo/'olo machines due to a word-write to an odd address... Bummer, sorry about that.~~~

## 1.88 GhostRider/Hunt Data

|             |                                                                                                                                                                                                                                                                    |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Hunt data                                                                                                                                                                                                                                                          |
| Syntax      | <code>h [start] [end] [data (joker)]</code>                                                                                                                                                                                                                        |
| Function    | Hunt area for given data. The data must be supplied in hexadecimal notation. The hunt-pattern can have any length between 1 and 32 bytes. Jokers are supported nibblewise, thus making it possible to have a hunt-mask. See the Fill-command for parsing examples. |
| History     | 081093 - Added to monitor. No problems.                                                                                                                                                                                                                            |
| Preferences | Progress-bar.                                                                                                                                                                                                                                                      |

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Ideas                    None.~~~~~

## 1.89 GhostRider/Hunt Not Data

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Hunt NOT data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Syntax      | hn [start] [end] [data (joker)]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Function    | <p>Hunt area for bytes NOT equal to given data. The data must be supplied in hexadecimal notation. The hunt-pattern can have any length between 1 and 32 bytes. Jokers are supported nibblewise, thus making it possible to have a hunt-mask. See the Fill-command for parsing examples.</p> <p>You can use this as a simple mungwall/enforcer system if you have trouble with "random" access to memoryareas not allocated: Fill the memoryarea with a specific value, run the program (until it crashes), then HuntNOT the area for "illegal" values. Now you have a specific address which should make it easier to pinpoint the bugged routine. Later versions of GR will be able to monitor such addresses while stepping the program -&gt; Lean back and enjoy the show :)</p> |
| History     | 270194 - Added to monitor. No problems.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Preferences | Progress-bar.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Ideas       | None.~~~~~                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

## 1.90 GhostRider/Hunt Branch

|             |                                                                                                                                                                                                  |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name        | Hunt branch                                                                                                                                                                                      |
| Syntax      | hb [address]                                                                                                                                                                                     |
| Function    | <p>Hunt for branches accessing address. Only 32KB on each side of the address will be searched, and only for 8 and 16 bit branchtypes (the 32bit branches of 'o2o+ is not supported... yet).</p> |
| History     | 181093 - Added to monitor. No problems.                                                                                                                                                          |
| Preferences | Progress-bar.                                                                                                                                                                                    |
| Ideas       | Recognition of the 'o2o+ 32bit-branch commands, searched for in supplied area (no auto-calculated area!).~~~~~                                                                                   |

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