GhostRider

Jesper Skov

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COLLABORATORS			
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ACTION	*NAME*	*DATE*	*SIGNATURE*
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Chapter 1

GhostRider

1.1 Documentation for GhostRider version 1.9

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 V1.9

Shareware, Copyright © 1992-1994, Jesper Skov

Welcome to a new introduction! If you have been with me (or rather GhostRider) from the start, you will know that the introduction has not been changed for a good while (from V0.22 to this present V1.9). That is not a mistake! I really don't have much to say about the GhostRider development... Until now. I feel I should make some things clear. First of all, GhostRider does _not_ rely on GhostBoard in _any_ way. This is mostly because of the fact that I have not had a GhostBoard myself for quite some time now, and in this period I have continued to develop GR so it now is capable of running without additional hardware of any kind; in the beginning (V0.2) GR could
~~~~~

only run with a GhostBoard (or an equivalent board) simply because it was run in $F00000 RAM. Later on (pretty soon, actually) I changed it to be a "normal" Amiga executable so that I could get some ideas/response from my new roommate. However, GhostRider still needed a NMI button to be invoked and this turned out to be a problem when I sold my A2000 and bought an A4000 - why in hell did Commodore remove both IPL and LVL7 lines in the ZorroIII bus standard? Yeah, I know; It is more "system" friendly with only two interrupt levels but they did themselves advocate the NMI (and the $F00000 RAM area) for debugging purposes in the start. Anyway, bottom line is; no NMI guarenteed on C= machines. Back to the drawing board! In fact this problem simply provoked a faster development of the GR system interface which was planned from the start. The last step in this process will be the option of running GhostRider _with_ the system (as opposed to "on" the system). Simply put, it will be possible to run GhostRider as a task, on it's own screen with full system access to RAM disk and harddrives. This, however, kind of brings me to the second thing I would like to elaborate on, namely the reason for changing the release form of GhostRider to shareware:
$ MONEY $

From the first public release (in 1993) to this very date (08.09.94) I have been paid a grand total of.... $20US - for just about two years worth of hard (? Who am I kidding ? :) work. Now, I don't want to seem greedy (anyway, I don't FEEL greedy), and I kind of promissed myself (before starting this new introduction) that I would not write a "send me some money" pep talk, but I could truely need some "inspiration". The reason is, that I feel there is so many things I would like to see in GhostRider, but on the other hand, I also feel a bit like a fool working on a "dead" project - I hardly ever get any feedback on my work (sigh! :). So, in a way I am glad that I had the moral to finish version 1.0 (keywords being full disksystem and disassemble editor). If I don't get any new moral support I now want to devote some more time on other projects (for my collection of unfinished projects - it has been neglected for too long :), but HEY! You can change this ("I have a dream!" ;^). You can see for yourself how much work I do for a lousy $20US - even though I have decided to adjust my fee a bit :) Call it a change in business politics if you want ;)

At last I would like to (properly) thank Peter Folke Pedersen for his great picture of the GhostRider... For some reason you did not get the appropriate credits in previous releases - sorry! Also special thanks to John Girvin for registering GhostRider - at least I now have been paid 0.06 cents per program line... I would love to see it rise to the rate of the NASA shuttle programs - ~$1000US/line :) - In my dreams *<:^>

Aalborg, 08.09.94
Jesper Skov

The text below is a bit old (GR V0.22), but hey! So am I :^)

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. Unfortunally 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 in header.	HELP		

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 addresstable.
 ~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.

 ~verify~       Toggle disk verify.

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.

 ~mon~          Display/change screen mode.

 ~cus~          Display/change exit-CR-program pointer.
 ~xcon~         Set exit beamcon0 value.


 ~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>
                ,[address] [mnemonic]

Function        Invoke M68k lineassembler from CA (or address).
                Assemble line.

History         261292 - Most M68000 commands assemble correct.
                090493 - All M68k commands now supported.

                ------ * GhostRider V0.22 changes.
                030194 - Fixed sub.l Ax,Ay bug.
                       - Fixed cmp.w #xx,Dn. Now assembled to cmpi.w...
                040194 - Will keep position at error. Errortext in header.
                160194 - Forced size of ([],ods) was not considered.
                       - Parse-errors at this ^ position was not handled.
                170194 - a (no arg) will start the lineassembler from the
                         curent memory address.

                ------ * GhostRider V0.42 changes.
                030394 - BTST Dn,#<data> was not recognized. Fixed.
                050394 - ADD/SUB/CMP <ea>,An was not handled correct.
Fixed.
                       - CMP -> CMPM assembly now handled correct.

Preferences     None.

Ideas/Bugs      The two-line assembler for the long (60+chars) commands of
                the 'o2o+ is not working correctly.~~~~~~~~~~~~~
```

1.7 GhostRider/Disassembler

```
Name            Disassembler
```

```
Syntax          D <start><\><end>

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

History         261292 - Support all M68ooo commands.
                010593 - Support all commands of the M68k family.
                250593 - Support for area/continuously disassembly.

                ------ * GhostRider V0.22 changes.
                160194 - Added \ specifier.
                010294 - Fixed potential bug in DC.W disassembling.
                       - ASCII column of the DC.W command moved 16 chars
                         right.

                ------ * GhostRider V0.42 changes.
                050394 - The shift commands now disassemble immediate shift
                         counts correct.
                       - Cache types was not handled correct. Fixed.

                ------ * GhostRider V1.0 changes.
                290694 - FMOVE Rn,<ea> crashed GR. Fixed.
                200794 - Addq/subq #8 disassembled #0. Fixed.

Preferences     Breaklines after:   - Unconditional branches.
                                    - Conditional branches.
                                    - Exception-causing commands.
                                    - Calls to subroutines.
                                    - Returns from subroutines.
                                    - Data words.

                Negative offsets representation (-$01/$ff)
                Show ASCII string after data words.
                How many lines to disassemble.


Ideas           Replace address with symbol if assigned.
                Better breakline after data words (try & u c what I
mean).~~~~~~~
```

1.8 GhostRider/DisassembleEditor

```
Name            DisassembleEditor

Syntax          d <addr>        Enter disassembleeditor (at address).

Function        This command opens the GhostRider Multi-Editor in
                Disassembler-mode.
                Cursor up and down (and return) will scroll the display up
                and down.
                Cursor right and DEL will enable you to edit the
                disassembled command.
                Any other key will clear the line and let you type a new
```

```
command.
When editing you will be able to enter a string with well
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.
1-0     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.
                1-0     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        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.

                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.
                1-0     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         240193 - Works fine!

                ------ * 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.

                ------ * 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!).
                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"<.
                You can also replace unknown letters with jokers (?). To
use
                another joker than the default, use the <joker>-option
(e.g.
                with *).
                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/comparing 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:
                H - This is a hard-link.
                C - This file has a comment.

History         261292 - Supports DOS0 (OFS)
                ?????? - Supports DOS1-5... Well the international mode is
                         somewhat.. erm, fucked up. Ain't got them charz!

                ------ * GhostRider V1.0 changes.
                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.
                Displayed is:
                 DiskType (DD/HD)
                 Disk Format
                 DiskName
                 Free Space
                 TrackLengths
                 DiskSync

History         081093 - First simple version. Still some bugs to fix.

                ------ * GhostRider V0.42 changes.
                080494 - Removed an ODD word-access that caused an Address
                         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.
                          (I only have one drive :)

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

                ------ * GhostRider V1.0 changes.
                270494 - Now support UN*X style parsing. See CD~notes
                          and function for a description of the path parser.
                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.
                         Support UN*X style parsing. See CD~notes
                         and function for a description of the path parser.
                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.
                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.
                Only D0-7, A0-7 and SR can be changed at present time.

History         261292 - Only M68ooo and the two CopperRegisters.
                051193 - Added VBR-register.

                ------ * GhostRider V0.22 changes.
                160194 - Disassembly of PC included, with standard syntax.
                         (i.e. can be assembled.)

                ------ * GhostRider V1.0 changes.
                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.
                At present 8 breakpoints are allowed.

History         011193 - Added to the monitor.

                ------ * GhostRider V0.42 changes.
                050494 - A breakpoint is now cleared if it caused entry.
                         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]
                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.
                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]
                zs..

Function        Zap specific or all symbols.

History         261292 - Working.

Preferences     None

Ideas           Zap symbols from list with mouse-point'n'click method.
                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.
                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.
                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.

                ------ * GhostRider V1.0 changes.
                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.
                Be careful when using this command. Wrong vectors may
                crash the system.

History         171093 - Added to monitor.

                ------ * GhostRider V0.42 changes.
                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        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
                cpr1/2lc-write will be used.
                You may force a full search at NMI-entry by pressing the
                right mousebutton when entering.

History         051192 - Working.

                ------ * GhostRider V0.22 changes.
                040193 - At systementry the copperpointers are copied from
                         the Graphics.library base.

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
                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/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 :)
~~~~~~~~~~
```

1.63 GhostRider/Display GR version string

```
Name           Display GR version string.

Syntax         ver

Function       Display GR version string, what source# this GR revision
               was assembled from and the revision number of the
preference
               structure.


History        170194 - Added to monitor.

               ------ * GhostRider V1.9 changes.
               080994 - Now also displays GhostRider preference revision.

Preferences    None.

Ideas          None.~~~~~~~~~~
```

1.64 GhostRider/Screen Mode

```
Name           Screen Mode

Syntax         mon <0-4>

Function       Change screen mode to one of five possible settings. The
               default settings consist of:

               PAL:High Res (29 lines)
               PAL:High Res Lace (51 lines)
               NTSC:High Res (23 lines)
               NTSC:High Res Lace (46 lines)
               MSCAN:Productivity (51 lines) (my default :^)

               The active monitor is marked with "*".
               Monitors which reset the display at exit are marked with
               "R".

               The default chosen screen mode is PAL non-lace.
               In the preference editor you may control _both_ default
               chosen screen mode _and_ 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.

History        200794 - Implemented.
```

```
                ------ * GhostRider V1.09 changes.
                290894 - Added "R" mark.

Preferences     Full control of screen mode definitions and selection.

Ideas           None. ~~~~~~~~~~
```

1.65 GhostRider/Display/change exit-CustomRegister-data

```
Name            Display/change exit-CustomRegister-program pointer.

Syntax          cus <program ptr>/<0>

Function        Display/change pointer to "copper-list"-like program to be
                executed at exit. Use "0" to disable the program execution.
                The program "language" is defined by elements of an offset
                word and a data word:
                [custom register offset].w, [data].w
                You end the list with a offset value of $ffff (-1).
                At this time also odd offset values will end execution, but
                this may change in later versions (i.e. for loop
                control/blitter wait etc.)
                With this different approach to the CR programming problem
                (previously done with a table) it is now possible to
                program the special double-store registers in the AGA
                chipset. Also it is more convenient this way; you may keep
                a "default" table on disk and load it to a free memory
                location when starting a GR session. This way you don't
                have to re-build the table each time you start a new GR.
                This command gives you the possibility of fixing CRs
                trashed by the GhostRider.

History         051193 - Added to monitor.

                ------ * GhostRider V0.22 changes.
                010294 - CUS data was not written properly at exit. Fixed.

                ------ * GhostRider V1.9 changes
                070994 - Function changed to control program pointer of
                         list to be "executed" at exit.

Preferences     None.

Ideas           None.
```

1.66 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?!?
~~~~~~~~~~
```

1.67 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.~~~~~~~~~~
```

1.68 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.~~~~~~~~~~
```

1.69 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.
                * 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.~~~~~~~~~~
```

1.70 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.~~~~~~~~~~
```

1.71 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.~~~~~~~~~~

1.72 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.~~~~~~~~~~

1.73 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.~~~~~~~~~~

1.74 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.~~~~~~~~~~~~~~~
```

1.75 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.~~~~~~
```

1.76 GhostRider/Exit

```
Name            Exit

Syntax          x <address>

Function        Exit GhostRider. Continue frozen program or reset procedure
                (at address).

History         261292 - Working (Heavy code :-)
                020193 - Added exit-address support.

Preferences     None.

Ideas           Mad idea: xc - skip boot-procedure and jump directly to
                              CLI.~~~~~~~~~~~
```

1.77 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 :-)
                020193 - Added exit-address support.

                ------ * GhostRider V0.22 changes.
                010294 - Now also kills ColdCapture reset-entry.

Preferences     None.

Ideas           None.~~~~~~~~~~
```

1.78 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. ~~~~~~~~~~
```

1.79 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 immidiate 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 BOJITUHRTP 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. ~~~~~~~~~~~~~~~
```

1.80 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!~~~~~~~~~~~~
```

1.81 Acknowledgments

```
   >» Peter Folke Pedersen for the fabulous picture of the GhostRider «<

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)
~~~~~~~~~~~~~~~
```

1.82 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. ~~~~~~~~~~
```

1.83 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 :

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 '020+, 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.~~~

1.84 GhostRider History

GhostRider V1.9 updated from GhostRider V1.9. Released on 09.09.94.

~General/Misc.~ Bugs fixed/New features.
~~Screen~Mode~~ New feature.
~Toggle~Verify~ New command.
~~~~Version~~~~ New feature.
~~~CR~Control~~ New operation.
Beamcon~Control New command.
___PAL/NTSC____ Commands removed.

Update ideas/bugs found by:

Yours truly/Denmark

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 ~~~~~~~~~~~~~~~~~~~~~~
```

1.85 GhostRider General/Miscellaneous History

```
                        Features of GhostRider V1.9:
                        ----------------------------

 290894 - Added a generic entry type. You may now activate GR with a
          exception call to GR-offset 2 (GR load address +2). Example: In
          your program change e.g. a-trap handler to GR-offset 2. You can
          now start GhostRider anywhere in your program with a Line-A
          exception (dc.w $Axxx). Below is a table of GR entry points:

          GR-offset 0 - CLI entry - do not use.
```

```
          GR-offset 2 - Generic entry (exceptions only).
          GR-offset 4 - System entry (jsr/bsr from user-mode is OK).
          ("NMI!")    - NMI entry - much like generic, but checks multiple
                        entry attempts (i.e. faulty signals from a NMI
                        button).
          ("RST!")    - Reset entry - do not use.

          Find offset of the ("?") marked entries by searching for the "?"
          longword. Call the address following the ID longword.

 310894 - Fixed bug that caused ECS machines to freeze if the multisync
          screen mode was activated. GR would also freeze if called from a
          multisync screen mode (from the system).

 060994 - Added disk verify. Consult the verify command for further
          information.


                        Features of GhostRider V1.0:
                        ----------------------------

* 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 anoying 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 diskroutines 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 litterature 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 needs a little explanation; First you will se 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 'o1o+ 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 'o1o+ 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/'o1o machines due to a word-write to an odd address... Bummer, sorry about that.~~~

1.86 GhostRider/Hunt Data

Name Hunt data

Syntax h [start] [end] [data (joker)]

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.

Ideas None.~~~~~~

1.87 GhostRider/Hunt Not Data

Name Hunt NOT data

Syntax hn [start] [end] [data (joker)]

Function 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.

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 -> Lean back and enjoy the show :)

History 270194 - Added to monitor. No problems.

Preferences Progress-bar.

Ideas None.~~~~~~

1.88 GhostRider/Hunt Branch

Name Hunt branch

```
Syntax          hb [address]

Function        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).

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!).~~~~~~
```

1.89 Toggle Verify

```
Name            Toggle Verify

Syntax          verify

Function        This command toggles the write verify flag between enabled
                and disabled. You will probably want it enabled as is the
                system default.  If a write error is detected you will be
                asked if the track should be attempted re-written or the
                operation should be aborted.

History         ------ * GhostRider V1.9 changes.
                060994 - Implemented.

Preferences     The default verify status can be set in the preferences.

Ideas/Bugs      None.
```

1.90 GhostRider/Workspace control

```
Name            Workspace control.

Syntax          work <chip> <backup/0>

Function        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.  The command checks for
                overlapping areas (not allowed), VBR and GR conflict.  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.

History         181093 - Added to monitor.

                ------ * GhostRider V1.0 changes.
                180494 - It is now possible to control both workspace and
                         backup location.

Preferences     The default workspace location may be set in the
                preferences.

Ideas           WorkSpace-controller, see function description.~~~~~~~~~~
```

1.91 Exit Beamcon0 value

```
Name            Exit beamcon0 value

Syntax          xcon <p>/<n>/<0>

Function        With this function it is possible to specify a beamcon0
                exit value which is not a part of the custom register exit
                program. This value is poked to the beamcon0 register
                before the CR "program" is "executed" (see the cus
                command).  The options "p" and "n" will set the value to
                either $0020 or $0000. If you specify "0" nothing will be
                poked.

History         ------ * GhostRider V1.9 changes.
                070994 - The commands pal and ntsc is "merged" to this
                         command.

Preferences     None.

Ideas/Bugs      None.
```

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