BACKWARD III

The ATARI ST emulator for Falcon 030

by Cyrille Dupuydauby.

adresse: 53 domaine des aigles

60500 Chantilly

France

e-mail: dupuyda@ibm.net

mailbox: Brasil, the ATARI BBS ou

Zyllius.

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Shareware (Keyware).

Warnings:

Backward is Shareware, which means it is freely distributed (distribution will be detailed later) so that anyone can use and judge it. If you find Backward useful and you intend to use it on a regular basis, you must retribute its author, hence helping future development. Backward III is the result of a (very) long work, please take this into account.

More precisely, Backward III is Keyware, which means the demo version (without the registration key) is somewhat limited. Those limits do not prevent an intermitent use, and whereas older version, no function is removed.

You'll find more explainations on registering further in this document.

Distribution:

Backward III may be distributed as long:

- the distributed is the demo (keyless) version.

- all files are kept unchanged (and please keep other languages files).

- the price for it just covers duplication and distribution costs.

Remarks:

-This document refers to standard actions such as using mouse, copying files, formatting floppies and so on. In case of doubt, please refer to your computer documentation.

- This is the beta (pre-release) version of Backward III. It has been carefully tested, and should be bug-free. The final release is due to July 1995, so please send your comments or requests before the end of June.

Introduction:

Backward III (which will be now named as Backward) is an ST emulator, which means it helps old ST software to work on your Falcon. Furthermore, Backward offers some helpful functions, which easy the use of any software. Finally, Backward corrects various system bugs, improving general performance.

Most of Falcon users knows Backward II and a few Backward I. But please take the time to read this document, since Backward use as evolved.

Backward was created in April 1993 and is written in assembler.

Backward is a kit made of various files and programs:

- BACKLOAD.PRG and BCKWTSR.EXE files contain the emulator itself.

- BACKWARD.APP and the BCKW???.RSC files contain the library manager.

- PATCH.GTP, UNPATCH.GTP and the *.PTC files contain the patch programs and patch scripts.

- MINIDESK.PRG is the desktop program used when the GEM is deactivated.

- BACKWARD.DKS contains the set-up library.

- BACKWARD.INF contains the preferences.

- the *.DOC directories contains this document in various languages and various formats.

Installation:

Floppy:

Even if Backward has been especially designed for hard disk, it can be used on a floppy. Just take a DD (720Kb) floppy, create an AUTO directory and put BACKLOAD.PRG in it. Then copy BCKWTSR.EXE,   BACKWARD.* and the BCKW???.RSC files on the root directory. You may copy the other files as you see fit. Each time you'd like to use Backward, just start (cold start i.e power on) your computer with this floppy in the drive. Backward will then install itself in memory. Once you're back to the desktop, you can use any program. As long as you neither press the Reset button neither do a cold start, Backward will be

resident. So you don't have to keep the floppy in.

    <u>Hard Drive:</u>

Two tricks:

- keeping the Alternate key down while booting prevents the hard drive to start (you have to do it twice for booting on a floppy). Using this method you can put Backward on a floppy if you do not want to have it always resident.

- keeping the Control key down while booting prevents AUTO programs and desk accessories to be loaded. This way you can rename or delete BACKLOAD.PRG for deactivating it (please remember that Backward is memory resident until the next cold start).

The hard disk installation is exactly the same than the floppy one. Just work on drive C instead of Drive A. If you want to reduce boot time, install BACKLOAD.PRG as the first program in your AUTO folder (for knowing the real file order, just use the unsorted option). For altering this order, create on AUTA directory on drive C and move the files from the AUTO directory to AUTA one by one. Then delete the AUTO directory and rename AUTA to AUTO.

Anyway, BACKLOAD.PRG must be executed before MINT.PRG.

Sadly, it is impossible to use concurrently Backward and a virtual memory driver (such as Outside or VRam).

    <u>First test:</u>

When BACKLOAD.PRG is executed a message is shortly displayed. Then the screen become a bit messy and your computer restart. If everything is ok, after the ATARI logo is displayed, a message saying that Backward is resident is displayed.

If you have trouble in any of those stages, check that all files are presents.

You can also press one of the Shift keys when the message is displayed, it will allows you do disable Backward (but it will stay in memory).

If you still have troubles, try booting with no desk accessories and no AUTO programs (apart from BACKLOAD.PRG). If you have still problems, please contact me (via internet e-mail if available).

The emulator:

As the emulator is memory resident, it is rather invisible. But once it is resident, you can alter its set up through keyboard short cuts. Those short cuts are Control+Alternate+ a numeric keypad key:

(for 16Mhz (high speed).

) for 8Mhz (low speed).

7 for deactivating the instruction cache.

8 for activating it.

4 for deactivating the data cache.

5 for activating it.

* for switching between PAL and NTSC display (50hz/60hz).

+ for louder sound.

- for softer sound.

Delete for doing a cold start.

Those short-cuts have been changed since Backward II (they look a bit more logical now). You cannot alter the Blitter speed (it's useless). Those short cuts should be always available, but sometimes the keyboard is deactivated (during floppy access or after a crash).

Note for Backward II users: As you have certainly noticed, shot cuts have been slightly changed. The Blitter frequency cannot be changed (it is kept at 16Mhz) because it was useless.

The library Manager:

Preliminary note: The current version of the library manager is currently an improved version of the Backward II interface. But I hope I will be able to write a new one.

Preferences:

Preferences include the general options and the default set up. Please remember the the default set up is used when you run any non recognised programs (including the GEM desktop). So if you have a default-set up with no cache and/or a 68030 running at 8 Mhz, you will have a slow Falcon. In order to avoid difficult situations, GEM and hard drive are always turned on for the default set-up.

You can press one the Shift keys when the Backward message is displayed at boot time, it allows you to disable Backward: general options are all turned off, TOS patches are off, frequency is 16Mhz, caches are on etc...

Links:

Backward is able to recognize programs and to adapt its setup accordingly. For such a recognition, Backward uses keys, which are extracted from the program. There are two kinds of links : floppy and program links.

A floppy link associates a set up to a floppy disk. When you boot up on a floppy, Backward reads the boot sector, extracts some keys and check the presence of those keys in the library. Floppy links allow you to use any Backward options, but they are only recognized at boot-up.

A program link associates a set up to a program file (e.g.: *.PRG or *.TOS). When you run a program (from the desktop, or in the AUTO folder while booting), Backward III extracts keys from the file and checks for their presence in the library. Program links do not allow all Backward III options (e.g : changing memory size or deactivating GEM), but they allow you to use program on an hard disk.

Presentation:

When you start BACKWARD.APP, the screen displays a menu bar and a window showing the library content (for the moment, you can use only one library which is stored in BACKWARD.DKS). The demo version allows up to 20 set ups in the library and the registered one allows up to 2000 (more on request).

Only the name of a set up is displayed in the window. They are sorted in alphabetical order.

The Menu Bar:

In the first menu (BACKWARD) you find the classical 'About...' entry and your accessories.

The second menu (File) gives you access to :

- Save library : writes immediately the library to the disk.

- Save Preferences : save the default set up and the general options. The default set up can be modified when there isn't any selection.

- Quit : go back to the Desktop.

The third menu (Library) gives access to :

- Add a set-up... : for adding a new set up in the library.

- Delete a set-up : for removing the currently selected set up.

- Re-scan disk : read the floppy and tries to find the associated set-up. Sadly there is no equivalent option for program links.

The fourth menu (Options) :

- Register.. : gives access to the registration box. You have to enter your name and your key for registering a demo version (beware, case are significant).

- Set up.. : allow you to change the selected set up (or the default set up if none is selected).

- General Options ...: gives access to the options dialogue box which contains options shared by all set ups.

- Then you have the pre-sets which allow you to choose easily a set up.

<u>The Library Window:</u>

The only window shows all setups present in the library sorted by name. Arrows allow you to change the part of the library displayed. If you press a alphabetical key, the contents of the window change to display setups starting with this letter.

A single click on a setup selects it, and a double click edits the setup.

When the library is modified, the window title changes to '* Library' as a reminder.

<u>The setup dialogue:</u>

This is the essential part of Backward; in this box you define the various options of the emulator which will be used when you run the associated program or floppy.

A the top of the dialogue, there is a text field where you can enter and edit the setup name.

There is also a button : 'Link to ...'. Each set up must be linked to a floppy or a program, otherwise it will useless. If you press this button, a alert box ask you whether it is a floppy or a program link. If you select floppy, Backward reads the floppy in drive A and associates the setup to this disk. If you select program, the file selector is displayed and you can select a program to which will be linked the setup.

Then you have various options which are grouped by category:

· MC 68030 : options related to the processor :

- Frequency : allows you to select the processor speed.

- Caches : allows you to select which on board caches are active. None means no cache, Inst. means instruction cache only, Data means data cache only and both means both caches. Most programs works very well with data cache active, but some do not cope with instruction cache.

With a VGA display, a Falcon at 8Mhz with no cache is slower that a ST() (approx. 10% slower). But with a VGA monitor, 8Mhz and data cache, the Falcon is approximately as fast as an ST.

·Hardware : options related to the hardware :

- Speaker : allows you to switch on/off the internal speaker.

- Hard Disk : allows to to ignore the hard drive. This option works only with floppy links. If you keep the hard drive, the falcon always uses the AUTO folder and desk accessories present on drive C.

- Video (STlow, STMed, STHigh, Def.): allows you to change the resolution (Def. means that the resolution is not changed). When the program terminates, the previous screen resolution is restored.

·System : miscellaneous options:

- Sound errors (None/Corr./Spec./STE) : decides how bus errors are handled. None means that nothing is done, when an error occurs, two bombs are displayed. Corr. means that each access causing an error is correctly re-executed, this option slows down your computer when they are many errors (e.g: digisound). Spec. means that Backward tries to correct the program which causes such errors; it is the more powerful option, it works great (good sound) without slow down. STE means that such errors are simply discarded; as it implies that sound is of lesser quality, use this option when the others are inefficient.

- Memory : allows to select the memory size. This option works only for floppy links. Only very old programs requires a specific amount of memory (mainly 512Kb).

- TOS Patches : corrects the some system calls. I have heard that previous Backward versions had some problems with some games written in basic when this option was on. Sincerely, this option should ALWAYS be turned on, as the Falcon TOS is a complete mess.

- GEM : allows you to deactivate GEM (works only with floppy links). It frees 32Kb in the lower part of the memory. Some

old games requires this (it allows you to run games which works only on TOS 1.00, such as Bionic Commando or Star Trek).

Sadly, there is no perfect method for finding which setup is required for a program. There is two main methods : either you start with a minimal setup (preset 'Falcon') and you change some options till the program runs, or you start with the strongest setup (preset 'ST(e)') and you remove options. The first method gives best performance results, but the second one needs less tries. Only one rule applies : if your program do not work with the preset 'ST(e)', it is very unlikely it can be used with this version of Backward.

Important note : even is the dialogue allows you to turn off GEM and hard disk in the default setup, they are always kept on to avoid troubles.

General options :

There are three options :

- Multiscan screen. It concerns VGA, SVGA or Multiscan screen owners. When it is turned on, Backward emulates PAL (i.e. 50Hz refresh rate). If your screen do not support 50Hz Vertical Frequency (i.e. rolling screen), turn this option off.

- Skip IDE drive. This option prevents the TOS for checking IDE drives. Choose it only if you have no IDE drive (otherwise it will be hidden).

- no ATARI Logo. This option disables the display of the ATARI Logo at boot time.

MiniDesk:

When GEM is deactivated, as the GEM desktop cannot be used, MiniDesk is provided instead. As its main goal is a low memory usage, the interface is rather simplified. It displays all directories (in brackets such as [AUTO]) and programs. The arrows allow you to change the current selection. Pressing Enter on a directory opens it (the directory [..] allows you to return to the previous one), and pressing enter on a program runs it.

Alphabetical keys change the current drive accordingly. GEM program won't work when run from MiniDesk.

The Patch kit:

This kit contains two programs : PATCH.GP and UNPATCH.GTP. Patch executes a patch script to modify a program and unpatch removes those modifications. Patch files use the extension .PTC; they are ASCII files containing patching orders.

The PATCHES.LST file contains the list and short description of patch files. If you want to apply a patch, just drag the corresponding file (e.g. KILCLOUD.PTC) on the PATCH.GTP icon (take the time to make a backup copy of your program). Then follow the instruction on the screen. If you want to remove the patch, drag the same script file on UNPATCH.GTP.

Remarks:

- *.PTC files (generally) work only with a given version of a program.

- a patched program is very unlikely to be working on a ST or without Backward, but UNPATCH can restore it.

- those patches take a lot of time and are not guaranteed (still some troubles with Microprose Golf).

- they are some securities : PATCH won't do patches if it does not recognize a program, but if the patch failed, run unpatch to make sure that all patches are removed.

- programs listed in PATCHES.LST REQUIRES to be patched in order to run on a Falcon.

Registration:

To be registered please send 100FF (or equivalent in your currency) to the following address :

Mr Cyrille Dupuydauby

53 domaine des aigles

60500 CHANTILLY

FRANCE

You will receive a disk with the latest released version and a registration key and support (e.g. you can send me copies of non-working programs).

Beyond the horizon:

Some tricks:

Upgrading from Backward II :

The program CONVERT.PRG converts a Backward II library (BACKWARD.DAT) in a Backward III library (BACKWARD.DKS). Simply copy it where you have your old library and run it, the Backward III files will be automatically created.

Soft Roms:

Backward offers a unique ability : using any TOS 4.xx on any Falcon. Simply get a copy of TOS 4.xx roms in a file, name it ROM.IMG and copy it on your C drive (or Backward floppy if you use floppies). Beware, Backward III uses ROM copies; TOS.IMG files are RAM version of TOSs.

Replacing MiniDesk:

This feature will be fully integrated in the future, but you can already replace MiniDesk by the shell (non-GEM) program you want. Simply copy your shell (e.g: COMMAND.PRG) where MiniDesk is stored, and rename it to MINIDESK.PRG.

The future:

As my free time is dramatically shrinking, I cannot make any plan beyond next Backward version. Since the last two years, 75% of the time passed on my Falcon was devoted to Backward.

At least, I hope to find the time to rewrite the library manager, which currently prevents Backward III to be used at its full power.

This version is dedicated to all my registered users.

See you soon !