Simtec IDE Filing System © Simtec Electronics 1997

This Read Me file describes how you should load and use this version of
the IDE Filing System from Simtec Electronics.

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##

1)   IDE DISC MANAGER INSTRUCTIONS

The IDEFS filing system and the !IDETool manager software are capable of
understanding and managing a range of disc format and partitioning schemes.
These include any standard ADFS formatted disc including 'Large' disc
formats, HCCS partitions and of course the Simtec partitioning scheme.

1.1 Why partition?

The Disc structure of Risc-OS prior to version 3.6 allowed only a maximum of
512Mb of a disc drive to be used. With the advent of larger drives, this
restriction meant that large parts of a disc were unuseable. When Acorn
introduced 'New-Filecore' disc format with the introduction of Risc-OS 3.6,
the limit was increased to 4GB. Such New-Filecore discs have the
disadvantage of having a large LFAU (file allocation unit) which is less
efficient in storing small files and directories.

Partitioning creates multiple disc images on a physical drive, which are seen
by the computer as separate drives. Partitions can be any size from 1 to
512Mb. (For New-Filecore, this upper limit is 4GB).

In this way, on an A5000, a 1.2Gb drive can be split into two 'drives' of
512Mb each with the remainder in the third partition. Currently there can be
up to 32 partitions per physical drive but Risc-OS can support only a total of
eight partitions active at a time.

2)   Getting started

Once you have installed your interface and drive and your machine is
successfully powered up, you will find that there are only two optional
configuration commands that need to be performed before you can make full
use of your drive. These are described in section (3) 'Making a drive
bootable'.

If your drive has been pre-formatted then one or more IDE drive icons should
appear on the left hand side of the iconbar. If only one icon named 'IDEFS'
appears then your drive may not have been formatted for Risc-OS. If you have
moved an existing drive, use the *IDEFS:ListMounts command (section 8.2) to
verify that IDEFS has scanned all the partitions you expect.

If no partitions are listed, check that your drive is talking to your computer
by typing the following command at the command line:

*IDEFS:DeviceMap

After pressing <ENTER>, a list of all known responding drives will be given eg:

Simtec 16 bit IDE interface (slot 0, interface 1)
  2 FUJITSU M1636TAU   1125Mb 63 16 ML

If no drive information is listed then check that the drive is
connected correctly and powered.

If no list is given at all (or the command fails completely) then check that
none of the IDEFS rom modules have been inadvertently flagged as 'unplugged'
. This can be caused by flat batteries for the CMOS ram, poorly written
games software or by other cards which previously occupied the expansion
slot. If this is the case then any unplugged modules must be enabled for the
interface
to work correctly. At the command line, *UNPLUG will list any unplugged
modules. They can be restored by typing *RMReInit <modulename> where
<modulename> is the name listed by UNPLUG. All Simtec IDE card modules are
prefixed IDEFS...

3)   Making a drive bootable

For the more experienced user who wishes to get more from their hard disk,
it may be useful to execute a 'desktop boot file' on switching on. This
feature can be used to start applications automatically and arrange the
desktop windows. The method of generating these files is described in
detail in your Risc 0S3 manual.

Once created, it may be necessary to change your machines
configuration slightly so that it knows where to find your !Boot file.

If you would like your file to be loaded from your new IDE disc drive then
type the following commands from the command line (press function key
<f12>
if you are in the desktop). You must type the following configuration
commands, pressing the return <ENTER> key after each line:

*con. Boot
*con. FileSystem IDEFS
*con. Drive 4

If your !Boot file resides on a different disc then use Drive <n>
where n is your chosen partition number. In most cases this will be Drive 4.

When you press <ENTER> after each line, the * prompt at the beginning
of each line should move down one line. If an error message is seen
then re-type the command, checking the spelling.

*con. (con immediately followed by a 'full-stop') is the short form of
configure. All spaces must be included or the computer will not be able to
separate the command part of your instruction from the values.

You can verify that your commands have been accepted by typing:

*status

followed by pressing the <ENTER> key. This will display a list of machine
configurations. Press the <SHIFT> key to scroll to the end of the list. Check
that the values listed are correct. If not,retype the appropriate *con
command.

When you are satisfied, reboot your machine by simultaneously
pressing <CTRL> and <BREAK> so that your changes will take effect.

4)   Changing the disc boot options

Once the machine has had autobooting turned on, you must ensure that your
chosen partition has been enabled for booting. If you now type *CAT a
directory listing of current default drive will be displayed. The top line
should read:

Dir. IDEFS::< your partition name >.$ Option 02 (Run)

If the Option setting is not (Run) then you can change this setting by
typing the following OPT command. At the command line type:

*IDEFS
*DRIVE <n> <-- where n is the same as your configured Drive setting
*OPT4 2

Shut your machine down and next time it is restarted your !boot file will
be automatically executed.

5)   How to partition your drive

If your drive has not been previously partitioned for Risc-OS by your
supplier, you will have to run the !IDETool application to initialise your
drive for use.

Run the !IDETool application and it will open the main !IDETool window,
listing all IDE devices known to the IDEFS system. The application can be
safely quit at any time by clicking on the <CLOSE> button.

When an IDE device is being accessed by !IDETool, any displayed drive icons
specific to that device are unmounted and removed from the iconbar. This
prevents file access to partitions which may be about to change. When !IDETool
finishes the drive icons re-appear. It is recommended that any work be saved
before !IDEtool is run.

If the <ALT> key is held while !IDETool is run, it will enter search mode and actively look for lost partitions beyond the recorded end of the disc. This can be used to find subsequent partitions if an earlier one has become corrupt.

5.1) Device selection: Select an IDE device

    To specify a particular IDE device to work with, move the pointer over the
    chosen drive entry in the device list and press <SELECT>. Once a selection
    has been made, the Next> button will be un-greyed, allowing you to progress
    to the next screen. When un-greyed, the <Prev icon will go back one screen.

5.2) Device Shape: Automatic/manual drive shape setting

    The Next> screen displays the physical 'Shape' of the selected device.
    Normally the automatic setting should be used (set by default) but
    experienced users who need to specify a different shape from that
    automatically detected can manually enter the sector/head/cylinder values.
    These values are used by the formatter to format and partition the disc
    so, if changed, it is vitally important that the correct values be entered
    or disc errors will occur in use. The automatic sectors/heads value is
    found empirically while the number of cylinders is computed from
    information returned by the drive. The only value that may require manual
    adjustment is the cylinder number if the drive reports an incorrect
    capacity.

5.3) Partition list: List and select partitions

    The Partitions list displays a list of all partitions found on a device.
    Each entry lists the partition number, name and status. The status is
    either clear - no change, has an asterisk '*' - flags updated, or has '
    Changed'. If Changed is displayed then any previous information or files
    will be lost from the 'Changed' partitions when the changes are committed
    to disc. The procedure can be aborted at any time by clicking on the
    <CLOSE> button.

    If there is any unused space on the device then the <CREATE> button is
    enabled. Clicking on this button opens a blank partition details screen.
    Up to 32 partitions can be created on one device.

    Any listed partition can be highlighted by selecting them with the mouse.
    When highlighted, the <Edit> and (Delete) buttons are un-greyed so that
    the selected partition can be deleted or have its details amended.
    Deleting a partition will lose all files stored within it. Because
    partitions must be contiguous, all partitions after the deleted one are
    moved down the disc to fill the gap. As a result the data stored within
    these partitions is also deleted. The last partition on a disc can be
    deleted without affecting any of the others. This is useful in making
    space for UNIX type installations.

    BSD UNIX installation

    To make installation easier, the non-RiscOS partition descriptor of the
    first partition is set if there is any free space at the end of the disc.
    The type byte is set to &42 and the offset bytes are set to the first free
    cylinder. The partition pointer is updated when partitions are changed and
    completely removed when there is no free space. Non-RiscOS 'Raw'
    partitions can be assigned a drive number using the ***Attach** command so
    they can be accessed by UnixFS using Filecore DiscOps.

5.4) Partition details: Create/Edit partition information

The details screen allows new partition to be created or an existing one
to be edited. Partitions can be added until there is insufficient free
space on the device. Click on <OK> when finished to add the partition to
the list. Alterations can be aborted at any time by clicking on <Cancel>.

The following fields will cause a partition to be CHANGED

<Name>: This field accepts a string which is used as the disc name.
The unique name must be at least two characters long but no more than ten.

<Size>: This field sets the size of the partition in megabytes. Partition's
can be from 1Mb to 4Gb in size (disc capacity allowing). The size can be
keyed in directly or adjusted using the up/down arrows. Machines with old
filecore can address only <512Mb partitions. If any of these settings are
unsuitable then a warning is given when <OK> is clicked. The space
remaining on the drive is displayed below.

<Allocation unit>: This displays the proposed LFAU unit for a given size of
partition. This can be used to judge the optimal partition size to give the
most efficient file storage. If unset, a default value is used suitable for
the partition size. <Default> updates the setting with the default value.

<Boot>: Sets the partitions Boot options. This should be set to 2 - RUN
if the partition is to be used to boot the machine. (This can be changed
later by IDETool or by using the *OPT command at the command line)

<Update this partition...>:This will force a partition to be changed. When
updated, the partition will be initialised, and a new directory structure
and map will be written to disc. No other partitions will be affected.

IMPORTANT
Changing a partition's size, Boot option, allocation unit or name will
delete any data contained within it. This should only be done to empty
partitions or where the loss of the partition's files is not important.

The following flags can be updated without CHANGING the partition

<Don't automount>: By default, the first eight scanned partitions will have
a drive icon assigned to it on the iconbar. If an automatic dive icon is
not wanted this button should be ticked. This will hide the partition from
the desktop. A drive icon can be assigned to a partition at any time during
a session from the IDEFS filer menu. This can be made permanent by re-
running IDETool and changing this flag. This is most useful when access is
required to partitions when there are no more available drive icons.
Partitions can be temporarily unmounted so that their icon can be re-
assigned to another. <Password protection>: When set, the
read/write/availability state of the partition can be set. The case
sensitive password is entered in the <Password> field and repeated in the
<confirm> field. Passwords can be from one to eight characters in length.
The password and confirmation must be identical to be valid.
The before and after password state of the partition can be set. In a
school environment it may be helpful if Applications partition is normally
read only but allows full read/write access for administration once the
password is supplied. This will stop unauthorised deletion of files.
Password protection of a partition can be removed by unsetting the
password enable flag. See also section (6) for additional password
information.

5.5) Set Device options: Long cable mode/troubleshooting

   !IDETool intelligently works out the appropriate settings for a
   particular device based on the capability information returned by it.
   This can sometimes be incorrect so the device options can be manually
   set if problems occur. If things work then don't alter them!

   Some older drives do not support the standard features of the ATA-2
   specification for IDE drives. In such cases, these 'difficult' devices
   can be made to work reliably by altering the Don't do flags.

   Long cable mode: Should be selected if an external cable is fitted to
   the interface. This reduces the data transfer rate by 25%, allowing a
   better safety margin for the signals when using long cables to attach
   devices. The external cable should be not more than lm in length.
   Some old IDE drives (and SYQUEST removable drives) have to run in the
   slower long cable mode as they can't normally cope with faster transfer
   rates.

   Troubleshooting:

   <Multi-sector> - some devices have defective cacheing firmware which can
   corrupt long files. If you have difficulty loading long (>128K) files then
   try setting this flag.

   <LBA mode> - Some old devices claim to be able to use LBA block addressing
   to access the disc. If the drive continuously returns errors then the old
   CHS mode can be forced by setting this flag.

   <IORDY> - This should only be set if the device continually locks the
   computer as soon as it is accessed due to incorrect assertion of the
   IORDY signal. If this flag is set then Long cable mode must also be set.

5.6) Low-level format: Format device / zero whole device or partition

   If your old drive has a large number of defects then they may be cured by
   low-level formatting the device. Low-level formatting completely erases
   all information on a device and writes fresh sector information to the
   disc. Some modern drives however prevent low-level formatting and
   implement their own defect management schemes (Quantum and Maxtor do this)
   . If it is not possible to format a drive, it will be erased by writing
   zeros to all parts of the disc. There is an option to erase any 'CHANGED'
   partition only. This is useful to invoke a drive's self defect management
   mechanism or just to completely erase sensitive data from a partition.

   Because any of these operations are detrimental to data stored on the
   device they should be used with caution! Be prepared to wait a long time
   while formatting or zeroing a disc as it may take 20mins or more.

   The settings are <Don't erase or format>, <Erase changed partitions>,
   <Erase whole disc> and <Format whole disc>.
   By default a drive is not erased and not formatted.

   Any defects found after formatting or erasing will be automatically
   mapped out when the partition information is written to the disc.

5.7) Partition device: Commit changes and write to device

   When you are happy with your choices, they can be committed to the
   device by first typing 'yes' in the <Yes?) field and then clicking on
   <Finish>. A status message will appear when the changes have been
   written to disk.
   If you have made changes that will permanently erase data from a
   partition, a further confirmation is required before the changes are made.
   If formatting or erasing have been selected then the status field will show
   the current phase of formatting, erasing or verifying and the the progress
   is indicated by the percentage hourglass. When formatting or erasing, the
   hourglass counts very slowly. When 50% is reached, the count now moves much
   more quickly as the device is verified. The formatter does not multi-task.

   Modifications can still be made to previous screens by clicking on <Prev
   and the whole process can be aborted at any time by clicking on <Close>.

6)   The IDEFS Desktop Filer

The filer is responsible for managing the drive icons found on the iconbar.

When the desktop is entered, one or more drive icons will be placed on the
left hand side of the iconbar. The icon type can vary depending upon whether
the drive is a normal fixed disc or removable or if the partition can be
accessed normally, is read only or locked. The partition name is displayed
under its associated icon or just a single IDEFS icon in the case of no
mounted partitions.

If IDEFS finds itself running on 'old filecore' any partitions >512Mb will
be ignored allowing only the sub 512Mb ones to be mounted. If a version of
new-filecore is subsequently installed then all partitions will be
accessible.

Pressing the mouse <Menu> button over any of the IDEFS drive icons will bring
up the following filer menu. Unavailable or disabled menu items are greyed
out. Most items have the same function as the ADFS filer except the following:

```
    +------------+
    | IDEFSFiler |
    +------------+
    | Name Disc >|
    | Mount    >|  --> mount from a submenu of all partitions known to IDEFS
    | Dismount  |  — -> dismounts a partition and removes its icon
    | Share    >|
    | Unlock   >|  — -> submenu prompts for a password to unlock partition
    | Lock      |  — --> re-applies password locking
    | Verify    |  — -> verify window with automatic defect mapping
    | Free      |
    +------------+
```

Name Disc: Allows the disc name to be changed.

Mount: When there are partitions available to be mounted then a submenu can be
opened listing them. A tick indicates a partition which is already mounted.
If there are unallocated drive icons (less than eight displayed) then clicking
<Select> over a partition name will mount the partition, create an icon and
map it to a free drive number. Drive numbers are allocated on a first come
basis starting at :4. Subsequent mounts are mapped to drive :5 :6 :7 wrapping

back after :7 to :0. The icons are displayed in order from right to left
starting with drive :4. Whether a partition is auto-mounted is governed by the
Automount flag set from within !IDETool. Only RiscOS partitions will be listed
by the filer. If desktop access to any corrupted or non-RiscOS partitions is
required then they can be listed from the command line interface using the
*ListMounts command and mounted using the ***Attach** command.

Dismount: If partitions are dismounted (unmapped), the icon disappears and its
assigned drive number is freed. Subsequent mounts will take the first free
number. This maintains a fixed relationship between partitions and assigned
drive numbers.

Share: Used to enable sharing of hard discs across Access networks.

Unlock: If a password has been set, indicated by a R/O or key symbol above the
drive icon, a writable submenu allows a concealed password to be entered. If
a valid password is entered then the partition access state will change to
the unlock settings (set by !IDETool). The partition will remain unlocked for
the rest of the desktop session. If you forget your password then it can be
changed or removed using the !IDETool application. Always keep your copy
of !IDETool in a safe place, not on your hard disc! This will stop other users
from changing or adding passwords, or formatting your disc!

Lock: This will immediately put the partition into the locked state, requiring
the password to be entered again to unlock it.

Verify: Verifies a partition for disc errors. If the Automatically map defects
button is checked then any defects found will be automatically dealt with. The
address of the last defect found is printed above the progress bar. If a
defect occurs within a file then the file will have to be deleted and the
defect dealt with manually. If the normal manual mode is selected, verify will
pause when
a defect is found and the <Map Defect out> button will be un-greyed. Clicking
on this button will try to map out the defect and verify will continue. The
defect can be skipped by clicking on <Continue>. The defects must be manually
mapped out later. On completion, a summary of defects found and mapped is
given.

Free: This opens a standard free window for the partition.

NOTE

The mounted drives mappings and access permissions are maintained when the
desktop is quit. If access is required to any unmounted drives then these can
be set up before quitting or by using command line commands.

7)   Removable drive support

IDEFS has built in support for removable media (Syquest) which enables a
cartridge to be inserted into the drive and mounted at any time[$]. When the
drive has spun up to speed, any partitions on the disc are scanned and
drive icons dynamically allocated and displayed on the iconbar.

If the eject button is pressed then all partitions associated with that
disc are dismounted and removed from the 'mounts list'. If there are any
drive icons present on the iconbar then these too are removed.

[$] Due to a limitation with IDE, there may be occasions when an error is

generated when a new disc is inserted. This can be eliminated by either:

a) Configuring the drive as a Master and attaching the Syquest drive to its
   own IDE channel.
b) Ensuring that all drive activity from a paired (master or slave) device
   is stopped while the disc is inserted and spun up to speed.

8)   Command line commands and help

The 'star' commands provided by IDEFS are accessed from the command line.
They can be listed at any time by typing: ***Help IDEFS**

The supported commands are **IDEFS, DeviceMap, ListMounts, Attach, Unlock,
Lock** and **StartupReport.** Further information on each command can be found by
typing *help <command> where <command> is the listed command of interest.

8.1) Commands
     ----

*IDEFS

This command has no parameters and changes the current filing system to
IDEFS. Use *Drive <n> to change the current drive to <n>.

8.2) Filing system commands

The IDEFS filing system commands are only directly available when the
current filing system is set to IDEFS. If IDEFS is not the current filing
system then the IDEFS commands can be accessed by adding an **'IDEFS:'** prefix.
If ADFS was current, then *Listmounts would return an error: File '
ListMounts not found'. By adding the **IDEFS:** prefix, ***IDEFS:Listmounts** will
be executed.

*DeviceMap

*DeviceMap with no parameters, lists all responding IDE devices for
each expansion card found by IDEFS. A typical list would be:

```
Simtec 16 bit IDE interface (slot 0, interface 0)
  0 QUANTUM BIGFOOT_CY6480A             6204MB   63   15   ML
Simtec 16 bit IDE interface (slot 0, interface 1)
  2 FUJITSU M1636TAU                    1125Mb   63   16   ML
Simtec 8 bit IDE interface (slot 1, interface 0)
  4 IBM-DBOA-2720                        689MB   63   16   ML
 *
```

For each device, details of the expansion card type, card slot number,
interface socket number, device id, name/model number and device specific
information is given. The specific information quotes the capacity, number of
sectors, number of heads and two mode flags M and L. 'M' indicates that
multi-sector commands can be used and 'L' indicates LBA addressing mode. The
absence of these flags indicates that either single sector commands or the
drive will be operated in CHS addressing mode.

*ListMounts

This command has no parameters and lists the details of all partitions known to IDEFS. The table generated lists the name, size, IDE device number, partition number, assigned logical drive number, the boot option, the current access rights controlled by any passwords and whether it is Risc-OS (See section 9).

```
Name        Size Dev Part Drv Boot Access Type
==============================================
Voyager    4095MB 2   0   :4  Run  R/W    RISC OS
Enterprise 1990MB 2   1            None   RISC OS
Grissom     100MB 2   2   :5       R/W    RISC OS
Raw-<2>      15MB 2   3            R/W    Other  <- Non Risc-OS partition
*
```

Any drive with no assigned drive number will require one to be Attached before it can be accessed by the filing system.

Attach :<mountname> [[:]<drive>|-|]

This command has several functions which are dependant upon the parameters given.   If an unrecognised partition name is entered then the error 'Unknown mount' is returned.

*Attach :<mountname>

On its own will test that a particular partition name has been assigned a drive number. Any partition with its 'Automount' flag set will be automatically assigned a drive number. If there are insufficient unallocated drive numbers, or a drive has been unmounted from the desktop, then the partition will need to be re-attached before it can be accessed.

In the above ListMounts example, *Attach Enterprise on its own would return the message 'Not attached to any drive', confirming that the partition called 'Enterprise' had no assigned filing system drive number.

*Attach :<mountname> :<n>

When a drive number between 0 and 7 is specified (optionally prefixed by :), the named partition will be given the filing system drive number specified. If the drive number is already allocated then the error 'This drive number is in use' is reported. If the mapping of a partition is not important, if an asterisk * is used instead of an explicit drive number, the next available drive number will be allocated.

*Attach Enterprise *

```
Name        Size Dev Part Drv Boot Access Type
==============================================
Voyager    4095MB 2   0   :4  Run  R/W    RISC OS
Enterprise 1990MB 2   1   :6       None   RISC OS <-next free number assigned
Grissom     100MB 2   2   :5       R/W    RISC OS
Raw-<2>      15MB 2   3            R/W    Other
*
```

The mapping of a mounted partition can be changed using the same command.
*Attach :<mountname> :<new drive number> will change the partitions
current drive number for the new one. Eg.

*Attach :Enterprise :0

Will change the mapping of Enterprise partition, currently drive :6 to drive :
0. As the partition is already mapped, partition name may be substituted with
its drive number (:6). As a shorter alternative, ***Attach** :6 :0   has the same
effect.

*Attach :<mountname> -

This is used to unmount a partition and release its drive number for use by
other mounts. Again, for speed, the mountname can be replaced with the
drive number to be freed.

*Unlock :<mountname> [optional password]

Unlock is used to change the access state of a password protected partition to
its unlock state. A partition can be specified by either its partition name or
its assigned drive number (if it has one). The password can be entered at the
same time but for extra security, if not supplied, it will be prompted for
after <ENTER> is pressed. The CLI prompt changes to a colon (:) and any
characters typed appears as asterisks. If the password was correct, partition
will remain in the unlock state until the machine is re-booted or explicitly
locked. Any attempt to unlock a non-password protected drive will generate the
error 'This drive is not password protected'.

*Lock :<mountname>

Lock will immediately place a partition back to its lock state. As with
*Unlock, the mountname can either be the partition name or its assigned drive
number. An attempt to lock an already locked partition will do nothing while
locking a non-password protected partition will return an error.

*StartupReport

This command has no parameters and generates a diagnostics report of how far
IDEFS progressed when scanning each interface. Any device not reaching 9 has
failed to be detected fully and cannot be accessed. An example report is shown
below:

```
Simtec 16 bit IDE interface (slot 3, interface 0)
  0   9                                      <-- Device detected fully
  1   1                                      <-- Slave device not connected
Simtec 16 bit IDE interface (slot 3, interface 1)
  2   0                                      <-- No device connected
  3   0
*
```

9)   Disc wastage - Non-RiscOS - >=512Mb and 'Other' partitions
----

Any partitions that IDEFS cannot recognise as being RiscOS formatted will
be classed as 'Other' and given a partition name Raw-<n> where <n> is the
IDE device number containing the unknown partition. Situations when this
might occur include devices with PC formats, native UNIX drives, corrupted
Risc-OS partitions and any unused space at the end of the disc.

If a machine is running old filecore, there are two case where a partition
may be listed as >=512Mb. Either a new filecore formatted disc has been
connected to the interface or an illegal disc format has been created using !
HFORM under old filecore. This can occur when a large capacity hard disc has
been previously formatted using !HFORM without reducing the number of
cylinders to keep the formatted capacity below 512Mb. In both cases,
partitions should only be accessed under new-filecore. While not officially
possible, new filecore can be soft loaded onto older machines to allow access
to these partitions.

If a previously usable formatted disc, moved form different interface, is
now classed as a >=512Mb partition then steps must be taken to rescue your
data. If the situation is allowed to continue then severe data corruption
can occur as the disc is filled if filecore tries to access disc addresses
beyond 512Mb. If such a disc is found, manually attach the partition and
move the data to another disc. Once reformatted to a legal <512Mb partition
the data can be moved back.

To access these unknown partitions using Filecore, they must first be
manually mounted from the CLI. The partition name is found using *ListMounts
and then made known to Filecore by assigning a drive number using the
*Attach command. The partition may be allocated an automatic drive number
using * or given a specific number with the :<drivenumber> option. (See
*Attach for more details)

10   Re-programming the Podule FLASH ROM

The Simtec IDE interface uses an electrically erasable ROM to store its
control software. This enables the contents to be updated easily from floppy
disc with the ability to add your own modules. As well as the IDE software,
each card has a copy of Pineapple software's VProtect module (current at the
time of duplication) to give basic help in the control of the spread of
viruses.

The !ROMBinder application enables the Flash ROM of any Simtec IDE card to
be updated by selecting the card to be programmed and drag-and-dropping the
modules to be programmed onto it. This process can be aborted at any time
by clicking on the <Quit> button.

a) When run, the main window of !ROMBinder is opened listing any Simtec IDE
   expansion cards. Select the chosen card with the mouse and the ROM capacity
   for that card is displayed.

If the ROM has been disabled for some reason then a candidate card will not be listed. In this case, select the <List all cards> button for a list of all expansion cards. The card will be identified as being the only one with a completely blank entry. The slot number can be verified by typing *Podules at the command line. The disabled card will appear as: Simple type &x where x is a letter which depends on the version of risc-OS (F for Risc-OS3 and V for 3.5 and later).

b) If the <Load default modules> button is clicked, the default modules required for the card are listed in the window below. Space allowing, extra modules can be dropped over the window to be included. Unwanted modules can be deleted from the list by selecting them with the mouse and clicking on the <DELETE> button. Do not delete any of the IDEFS modules as this will prevent the card from functioning correctly.

As the modules are loaded by the OS in sequence, make sure that the order of any critical modules is correct or this may prevent the computer from re-booting.

c) Once the desired modules have been loaded, they can be programmed into ROM by clicking on the <Write to ROM> button. This will take several seconds with the percentage completed indicated by the hourglass. Once started, do not interrupt the programming sequence as this may corrupt your ROM and make it more difficult to restart your machine.

d) When the hourglass disappears, !ROMBinder can be exited by clicking on the <close> button. A <CTRL> <BREAK> will be required for the loading of the new modules to take effect.

If it all goes wrong!

If the contents of the ROM has become corrupted (by accidentally adding an incompatible module or interrupting the ROM update) and the machine fails to boot, then it is possible to temporarily disable the expansion card ROM by removing the jumper cap from link **LK2**. Make sure that you follow normal safety precautions by switching off and disconnecting all power to your computer before opening the case. **LK2** is adjacent to the Static warning triangle and is marked with the text **LK2 OPEN=ROM DISABLE.**

OBSERVE STATIC PRECAUTIONS when removing the link as both the computer and expansion card can be damaged by static discharge.

With the ROM disabled, it will now be possible to boot the machine and run the !ROMBinder application to restore the ROM contents.

When re-programmed, shut the machine down, switch off and replace the jumper cap on **LK2**. The machine should now power up correctly with the newly reprogrammed ROM image.

10)   Compatibility

While the software has been extensively tested during development with a
wide range of drives, it is not possible for us to guarantee that this card
will work with every drive first time. In cases where popular drives have a
compatibility issue then every effort will be made to correct this. If you
experience problems then please contact us detailing the problem so we can
develop a 'fix'.

Currently we have tested the card with drives from:

Conner, Fujitsu, IBM, JVC, Maxtor, Quantum, Samsung, Seagate, SyQuest and
Toshiba.

If you discover any bugs or 'Features' or have problems using the card or
support software please follow this procedure:-

1. Make a note of the problem, giving as many details as you can.
2. Provide examples, if possible of the problem. Note the ***StartupReport**
output.
3. Make a note of the version number of the IDEFS software and support
   modules. This can be found by pressing F12 to enter the command line,
   and typing: ***ROMModules**
   Towards the end of the list of modules, the version numbers if the IDEFS
   modules will be given. If you have loaded your own modules in the EEPROM
   then note these too in the order in which they appear.
4. Note the date and serial number stamped on the expansion card.
5. Contact Simtec with the above information for assistance.

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