apm

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REVISION HISTORY

NUMBER	DATE	DESCRIPTION	NAME

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Chapter 1

apm

1.1 APM 37.10 user manual

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- ADD PICASSO MEM - Version 33.10 (27-Jan-96) by Nicola "Nik" Soggia ———
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DISTRIBUTION

This package is released under the concept of freeware, the package must be distributed as one whole. The distributor may charge a fee up to the cost of the medium for the entire package.

NO WARRANTY

This package is provided as is, without warranty of any kind, either expressed or implied. Should the package prove defective, you assume the entire cost of all necessary servicing, repair or correction even if I have been advised of the possibility of such damages. I'm not responsible of the results of the use of the package.

SUPPORT

If you have any suggestions, bug reports, or wish to let me know something about the package feel free to contact me at nsoggia@telnetwork.it

1.2 Foreword on APM 33.10

VERSION 33.10

APM allows you to use the memory on the VillageTronic Picasso-II graphics card as a plain ram expansion card. This is the fourth public release of APM, in previous releases the program was named AddPicassoMem, I changed the program's name as this is a major update, a sort of AddPicassoMem-2...

WHY I DID IT

I know it's a shame to waste the graphics capabilities of this great card and use just its memory, but my A3000 has still V36 ROM's and sometimes I fallback to kick 1.3 to play some game... Under 1.3 The Picasso-II can't be used as graphics card, and its memory stays there doing nothing! I have 2 Mb chip and 8 Mb fast, and the Zorro-II bus performance is not so exciting: Zorro-II memory cards are much slower than chip ram on A3000's, but one night I was thinking to all the A2000ers who maybe may like a utility like this: how about a 1Mb or 2Mb fast ram expansion for free? I strongly recommend you to use your Picasso-II to e.g. show Hajime Sorayama's or Boris Valejo's pictures rather than to contain some million numbers, anyway if you really need more memory this may be a cheap solution.

CONFIGURING A CARD

"Configure a card" means tell AmigaDOS what the card is made for. Once a card is configured via the BindDrivers command it can't be configured again (until you reboot, naturally), so the first step to make APM work is NOT to run the BindDrivers command. If you configure the card using APM, BindDrivers will not try to reconfigure it until you don't remove the Picasso-II memory region from public list. This means that when Picasso-II memory is available for public use, the village.library can't be loaded and AmigaDOS believes that the card is just an expensive fast memory expansion. Configuring the Picasso-II using APM gives you one advantage: if you need to use the card as graphics engine, you can still backup a move and dismount the memory (if nobody is using it). Naturally to reconfigure the card as graphics engine you will need to run BindDrivers and then you will not be able to use APM again, but you can mount and dismount Picasso-II memory as many times as you like until you run the BindDrivers command.

CHANGES FROM VERSION 33.0x

There is a new "quiet" switch, the opportunity to choose the priority of the memory region, direct Workbench support, new look for some message while the 'mangled header' message disappeared, internally it's a completely new program.

1.3   Using APM 33.10

REQUIREMENTS

APM is a pure program that runs on any Amiga under kick 1.2 and later releases with 4 Kb or more of stack memory.

CLI AND SHELL

APM accepts three arguments in the command line: a number and two switches.

MEMPRI = this is the signed byte value of the APM region priority. legal values are from -128 to 127, values too small will be rounded to -128 and values too big will be rounded to 127. If you don't set any value, APM will add the card's memory region as low as possible, trying not to go lower than chip ram's priority.

REMOVE/S = set this switch when you wish to remove APM region from the public memory list, do not set this switch when you wish to add APM region to the public memory list.

QUIET/S = set this switch when you wish APM not to show you diagnostic link "messa"} messages and do show error messages, do not set this switch if you wish APM to show you all messages.

Program's return code may also give a rough idea of what happened. OK (0) tells that everything went as expected, ERROR (10) tells that something was wrong in adding or removing the region because the region was already added or removed, FAIL (20) tells that something was wrong in the arguments or in the hardware setup. Messages on the standard output always give a explanation of what happened.

WORKBENCH

APM can be run from its own tool icon or from project icons, it accepts three tooltypes. Tooltype names are the same as shell arguments, but usage of the switches is slightly different: to enable a switch you have to set its value to "ON", "YES" or "TRUE", any other value will disable the switch (just specifying a switch will not activate it). If you don't wish to set a static memory region priority do not specify the MEMPRI tooltype at all or enclose it in round parentheses.

Examples of switch usage:

QUIET (switch is off, APM shows all messages) QUIET=NO (switch is off, APM shows all messages) QUIET=YES (switch is on, APM shows only error messages) QUIET=YES|NO (switch is on, APM shows only error messages)

Examples of mempri tooltype usage:

MEMPRI (mempri static value: 0) MEMPRI=AUTO (mempri static value: 0) MEMPRI=5 (mempri static value: 5) (MEM-PRI=5) (mempri will be determined dynamically)

1.4   Using APM 33.10

DIAGNOSTIC MESSAGES

These messages appear when all went as expected, their return code is ok (0), and they can be turned off using the QUIET switch.

ADDING MEMORY AT $aaaaaa-$bbbbbb, PRI: (-)ccc memory region has successfully been added to the public list. card is now in ram only mode and can't be used as graphics engine. aaaaaa is the region's starting address bbbbbb is the region's ending address ccc is the region's priority

PICASSO-II MEMORY REMOVED memory region has successfully been removed from the public list. card is now ready for a new configuration as graphics engine or again as a ram card.

ERROR MESSAGES

These messages appear when requested action is unnecessary, their return code is 10.

PICASSO-II MEMORY ALREADY IN PUBLIC LIST cannot add memory twice. you already added the memory to the public list (now the only thing you can do, if you wish, is to remove it).

PICASSO-II MEMORY NOT IN PUBLIC LIST cannot remove the memory region if it hasn't been added. this message is shown when you didn't add the memory to the public list or yu already removed it.

FAIL MESSAGES

These messages appear when something went wrong, their return code is 20.

CAN'T OPEN EXPANSION.LIBRARY expansion is a resident library and must always be available to any program, so this error message should never appear.

PICASSO-II DRIVER ALREADY IN USE cannot add memory when village.library is loaded. village.library is the video driver of the card, if it is found in memory, the card has already been configured as graphics card by the binddrivers command.

PICASSO-II CARD IS IN SEGMENTED MODE cannot add memory if the card has been installed in segmented mode. this will happen only on 68000 or 68010 Amiga's with 8 Mb of fast ram other than the one on the Picasso-II. The largest segment is 1/16th of the memory on the card, I think adding 64Kb to the public list makes no sense.

PICASSO-II CARD NOT CORRECTLY INSTALLED cannot add memory if the card is not correctly installed or not installed at all. for my own information: does the card work in graphics engine mode?

CAN'T FIND PICASSO-II MEMORY ADDRESS cannot add memory if the software coordinates of the card are unknown. when you boot, each card can be put anywhere in memory. If there's not enough addressing space for all the cards, some card may be left off. this error should appear if you didn't set correctly the segmented mode jumper on the card, in other words the card is in normal mode when it should be in segmented mode.

PICASSO-II CARD ALREADY IN USE cannot add memory if the card is currently configured either in ram only or graphics engine mode. if the card is working in ram only mode you can dismount the memory and re-mount it (why?), if the card was been configured by binddrivers as graphics engine there is nothing to do other than rebooting the Amiga if you want to use the card as memory expansion.

CAN'T WRITE TO PICASSO-II MEMORY cannot add memory if the card is write protected. when you boot, the memory on Picasso-II can't be written, but after a bit of initialization it can be write enabled. since I don't have any technical doc on waking up this card, I wrote my own initialization routine which can have some wrong timing. I think it will always work thanks to Buster, if it does not, it's a programmer's fault :(

PICASSO-II MEMORY IN USE cannot remove the memory region while it is in use. someone allocated part of the Picasso-II memory for its purposes, so the whole region cannot be freed until all the memory has been released. if Picasso-II memory is not free, APM tries to flush all the resident modules before giving up. I flagged Picasso-II memory in a way that system friendly reset resistant modules can't be allocated in its space (fast, public, 24bitdma).

1.5   Tutorial on APM 33.10

Q: May I write-enable the card without adding its memory to the public list? A: Yes, the program has a backdoor. To activate the backdoor simply set MEMPRI to -10000. If the memory can be enabled, the program will print its version string and will set a warn (5) return code. The "quiet" switch in this mode is not operative.

Q: Why priority is so important? A: Because it determines what regions are to be used first. AmigaDOS when there are more regions with the same properties tries to fill the one that has the highest priority.

Q: Is there a table of common priority values? A: Yes, but there may be variations depending on the OS in use. memory on a A3000/A4000 processor card if often at +40 memory on a A3000/A4000 motherboard if often at +30 memory on a Zorro-III card if often at +20 memory on a Zorro-II card (like the Picasso-II) if often at 0 memory on a A500 trapdoor card is often at -5 chip memory if often at -10

Q: Which is the best priority? A: It depends, you can let the program choose for you. The priority argument is not required, when missing, APM will add the card's memory region as low as possible, trying not to go lower than chip ram's priority.

Q: How can a very low priority be useful? A: A low priority maximizes the probability to successfully remove the memory. If you need the Picasso-II memory for a short time, you may add it at low priority to maximize the probability of a successful removal. This is what the program tries to do when no priority is given.

Q: Which is the lowest priority? A: -128. However you don't need to go that far, often -20 is enough.

Q: When can a very high priority be useful? A: When all your ram is on Zorro-II and other cards are bigger in size. Once set the region at the highest priority chances to remove it are very few, however if you are sure you won't need the card as graphic engine until next reboot, you may raise its region's priority so the system will allocate small buffers in it and keep the other bigger regions unsegmented.

Q: Which is the highest priority? A: 127. However you don't need to go that far, often +50 is enough.

Q: Why is the 'adding memory' message so cryptic? A: It's nothing very important, the 'quiet' switch turns it off. Adding memory at $200000-$400000, pri: 29 numbers may change depending on your hardware setup, this message is what appears on my system. $200000 is the starting address, $400000 is the ending address, 29 is the region priority. The dollar sign means that the numbers are in sedecimal base (a numbering base loved by programmers: it has 16 digits instead of 10), the second number less the first one gives the region size, in this case the message tells that the card is 2 Mb in size.

Q: Why is there a 'quiet' switch? A: To let APM show strings only in case of error. Setting QUIET is not equivalent to redirecting APM's output to NIL:, the first hides only non-error messages, the second hides any message. That switch may come handy under kick 2.0 (and later) in scripts that keep their console windows closed until something goes wrong, in any case the return code is not affected by this switch.

Q: Why some program says APM added 1023/2047 Kb instead of 1024/2048? A: Because each region must contain its control structure. This is a rule of AmigaDOS, not a bug in APM: this rule avoids all problems related to removals of regions containing other regions' descriptions. In any case APM reserves just the first 48 bytes of its region, those programs say that a whole Kb is missing just because they round numbers in a wrong way.

1.6   Releases list from 33.01 to 33.10

DEVELOPMENT

I write and test APM on an A3000/030-25, 2 Mb chip, 8 Mb fast, 2 Mb Picasso-II. Before releasing each new version to the public I test the program under enforcer and kicks 33.180 34.5 37.175 39.106 40.70.

ANCIENT HISTORY 33.01 (02-May-94) AddPicassoMem first public release.

33.02 (24-Oct-94) AddPicassoMem testers only release.

33.03 (06-Nov-94) BUGFIX: AddPicassoMem 33.01 returns "already in public list" if there are other Zorro-II expansion cards AND if the Picasso-II is not in the first slot (I accidentally swapped the card address and the card size variables in a subroutine). Thanks to: Gabriele Bonora for the bugreport, Gabriele Greco for the bugreport and the hint for bugfix (thanks again: that bug would be very hard to find without your source-code level help).

33.04 (15-Jan-96) BUGFIX: AddPicassoMem 33.03 relied on cd_BoardSize to find the card size, unfortunately the Picasso-II always tells expansion.library that it is a 2Mb card, even if it is half populated. From this version on, AddPicassoMem will ignore the cooked card size and will count the dram chips one by one (yes, 1.5 Mb cards are now correctly handled!). Thanks to: Keith Stewart for the bugreport and beta testing.

20TH CENTURY HISTORY 33.10 (27-Jan-96) Renamed from AddPicassoMem to APM, added Workbench support, improved CLI interface, added the opportunity to choose the priority of the memory region, rewrote documentation, reworked the source to improve its modularity, reliability and readability (33.0x is no longer supported). Thanks to: L Mac Mullan for the priority idea.