A500Accel

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Chapter 1

A500Accel

1.1   A500 Accelerator

Amiga 500 Accelerator Processor

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    Welcome once again to cheapskates corner, where we try and buy the
world for a song. This time around we shall increase the speed of the
processor to just over 14Mhz, double the standard speed, for under $25 !!!!

    You will need the following -

1. an MC68000p12A 16MHz processor. These are available in Sydney from VSI
   electronics, 16 DICKSON ave ARTARMON 2064 ph (02)4398622 cost is $18.90
   plus tax ($22.68 tax inc.)
2. a 74F74 D type flip flop. Geoff wood at Lane Cove or Rod Irving should
   keep them.
3. a few short lengths of hook-up wire.
4. a SPDT switch.

Refer to the accompanying circuit diagram
Note: Keep the leads to the switch as SHORT as possible.
The circuit is relatively straight forward. the 74F74 is wired as a
positive edge triggered divide by two circuit, which provides the alternate
clock frequency of 14.18Mhz approxiamately. The old 68000 8Mhz processor is
removed and replaced with the 16Mhz version which has is clock pin (15)
bent out horizontally so we can connect our new circuitry to it. The SPDT
switch either connects the normal 7Mhz signal or the new 14Mhz signal to
the 68000's clock input.

The switch can be changed while the machine is on, however it will simply
lock up. Just reset as usual from the keyboard once you have changed
speed.

I have a revision 5 board with new 1.3 roms which cope with the new speed
quite happily. Using the program CRAMDEN-SI from MEGADISC 10 to compare
the difference the mod makes : the standard position gives-
performance relative to amiga 1000 : 1.0
performance relative to ibm pc/xt : 3.2

On high speed the performance is-
performance relative to amiga 1000 : 1.7
performance relative to ibm pc/xt : 5.2

so roughly a 70% increase in performance.
Even though the clock speed is doubled to the processor, the performance
dosen't increase to 2.0 because the agnus and the other support chips are
still running at the same speed as before thus holding the processor up for
a slightly higher percentage of the total time than before.

This mod basically gives the same capability as the CMI accelerator board
priced at $399 in sydney, with the exception that it isn't software
controlled. However when it's only costing 1/16th the price one cant really
complain!!.

The machine should work on the 1000 and 2000 however the pin numbers may be
different.I suggest you compare the a500 schematics with that of your
machine and make note of the differences.

ADDENDUM
One machine this mod was carried out on had trouble with the one of the
disk drives at high speed. It appeared to be trying to step the head of the
internal drive faster than the drive could physically move and refused to
boot. When I connected a drive with a 5ms track-track access time and
booted off of it the problem dissappeared.

I have a patch for this problem for normal DOS disks to slow down the step
rate which sits in the boot sector.It may be a problem however for
protected software or non-standard boot sector type programs. Don't despair
however the patch is very small and should fit in somewhere anyway. Just
drop me a line. If your machine exhibits the problem, the patch disk is
available DIRECT from me with various usefull disk speedup utils and a
Trackdisk step-rate alteration program, plus loads of other priceless
information on gurus, reset program flow, diagnostics all on an ARP1.3
system disk for the princely sum of $5 !! There should be no problem with
HARD disks however.

End.

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