

CPUSpeed v1.2 Documentation

COLLABORATORS

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REVISION HISTORY

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Chapter 1

CPUSpeed v1.2 Documentation

1.1 CPUSpeed v1.2 doc (5.3.1997)

CPUSpeed v1.2 (5.3.1997)

by Simone Bevilacqua

DISCLAIMER & Distribution
some legal stuff

Requirements & Installation
did you buy another 8Mb Simm?

How it was born & how it works
do we need this proggy?

Changes from v1.0
why another release?

A few tech notes
not very interesting, indeed...

BUGS
rEaLLy?

Author
some notes about me...

Greetz and Thanx
Ciao!

1.2 DISCLAIMER and Distribution

DISCLAIMER

=====

```
*****
*   THIS PROGRAM IS PROVIDED 'AS-IS' WITHOUT WARRANTY OF ANY KIND   *
*   EITHER EXPRESSED OR IMPLIED.                                     *
*
```

I

```
ACCEPT NO RESPONSABILITY OR LIABILITY FOR ANY DAMAGE OR PROBLEM*
* DERIVING FROM THE USE OF THIS PROGRAM:  USE AT YOUR OWN RISK!!!  *
*****
```

Distribution

=====

This program is Public Domain, therefore IT CANNOT BE SOLD FOR PROFIT.
So only the distribution charges (i.e. disk, postage & packing, etc.)
can be applied.

Spread it wherever you want, but please remember to enclose this
little (hmmm... little?) amigaguide doc.

1.3 Requirements & Installation

CPUSpeed should work on any Amiga and doesn't need to
be installed. Check the

```
bugs
or
notes
section
```

if you have any problem.

To run it just type its filename or launch from WB.

1.4 Do we need such a stupid program?

Probably not.

It's just a proggy I coded for fun some months ago.
While re-ordering my directories it popped up saying:

```
PROGGY: "What about uploading me?"
ME:     "Forget it. You're completely useless..."
PROGGY: "But it won't hurt anybody..."
ME:     "hmm...maybe it could be a sign that Amiga coders
        are still alive and kicking... well, after all
        you're right man... er... bunch of bits!"
YOU:    "OK, OK! But, what does this prog do?"
PROGGY: "I can tell you which CPU is mounted on your machine..."
YOU:    "Really? I can't wait to see you in action..."
ME:     "HEY! It forgot to say that it also tells the speed
        of that CPU, expressed in Mhz. and cycles!!!"
```

YOU: "OH! Unbelievable! Better than any Sanity's demo...
 I can already feel the excitement when I'll hit
 [ENTER] after typing 'del CPUSpeed ALL'..."
 ME: "What were you asking for? Uploading? C'mon don't be silly..."
 PROGGY: "..."

Being more serious, let me explain the meaning of the output:

CPUSpeed v1.2 (5.3.97) - by Simone Bevilacqua

1. CPU: 020
2. FPU: N/A
- Approximate results:
3. CPU Cycles per Raster-Line : 907
4. CPU Cycles per 50th of sec.: 283970
5. Estimated Clock Frequency : 14.198500 Mhz.

\textdegree{} Line #1 shows which CPU of the 680x0 family is mounted on your machine

\textdegree{} Line #2 gives the FPU, which can be:

- 881/882 if there's a 6888x math co-processor
- 040/060 if the CPU is one of these, respectively

\textdegree{} Line #3 shows the number of cycles done by the CPU each time a scanline of the screen is redrawn

\textdegree{} Line #4 gives the amount of cycles at disposal of the CPU during 1/XXth of second, where XX is 50 or 60 depending on which

video mode
 is currently being used.

\textdegree{} Line #5 tells the speed of the CPU in MegaHertz

If these values seem to be
 incorrect
 , check if it is
 one of the cases listed
 here
 . If you can't still come
 up with good values, please
 write to me
 specifying
 your configuration and the results.

1.5 BUGS

The prog has been successfully tested on:

- my 68020/14Mhz. (what?!? you think I should upgrade? No way.
 I'm waiting for the A\box...)
- 68030/50Mhz. (thanx to Michele Berionne)
- 68040/25Mhz. (thanks for the indirect testing to Frank Wille)
- 68000/36Mhz. (
 more about this...
)

If you experience any problem, maybe you'll find an answer here

.

But BE WARNED: I can't assure it will give exact values on

060's

: probably you'll get them halved (easily fixable)...

in any case, please

give me

the results returned in the CLI.

1.6 Tech notes

VIDEO MODES:

Since the calculations are based on the VBL and **not** on CIA timers, the results could be faked if the display is set to a "strange" resolution (e.g. Multiscan).

Switch to PAL or NTSC to get more meaningful values.

030+ CACHES:

The tests on 030/040 were done BEFORE I messed up with the CPU cache(s): since then, in fact, the only machine the prog was tested on is my own A1200. I have to modify the status of the cache(s) in order to get exact values even when they have been switched off with SetPatch or something similar. When the program exits back to AmigaDOS, the cache(s) are restored to their old condition (but not the content!!!). If you own a 030+, check if everything is OK with the command "CPU" and, please,

inform me

.

APPROXIMATION:

Numbers are slightly approximate as I don't take into account the cycles lost with the Interrupt calls: anyway, they are almost totally uninfluential.

68000:

On 68000, the values "cycles per scanline" and "cycles per VBL" are even more approximate. In fact that CPU lacks of the "divu.l" instruction, which produces a 32bit result: so I had to emulate it through a routine which is very fast, (170 cycles + 1 divu.w cycles) but this speed is gained at the cost of a little approximation.

060's:

All the results could be halved on this CPU because it's not clear whether the main test loop takes 1 or 2 cycles: at the end I decided to go for 1, but, if the real timing is 2, the

cycles (which all the subsequent calculations are based on)
would be the half, as they are calculated in this way:

```
CYCLES = NUMBER_OF_LOOPS*CPU_SPECIFIC_TIMING
```

Maybe you could give an answer to
me
and the
other people
I discussed with about this thing...

LANGUAGE:

```
-----  
Coded in 100% asm (who cares?!)
```

SYSTEM FRIENDLY???

```
-----  
The system is completely switched off, so your computer activity  
is stopped during the whole execution (~1/10 of second).
```

1.7 Here's the culprit

Got some flames? Wanna talk about NBA? Want to tell me anything?
Well, I can be reached by snail mail at these addresses:

```
Simone Bevilacqua      <--during uni vacation periods  
Via A.Volta 6  
86010 Ferrazzano (CB)  
ITALY
```

or

```
Simone Bevilacqua      <--during normal periods  
P.za Garibaldi 9  
56100 Pisa (PI)  
ITALY
```

or by e-mail: bevilacq@cli.di.unipi.it <--obviously recommended!!!

```
=====  
The author wishes the A\box will soon be out to kick peecee's butts!  
=====
```

1.8 Greetz and Thanx

Mega greetings to all my friends.

Thanks to all the Amiga coders still around and in particular to:

Michele Berionne

Frank Wille
Timo Ronkko

for
testing
; also thx to:

Michael van Elst
Christian Wasner
Ben Hutchings
and all the others on comp.sys.amiga.programmer I can't remember

for getting interested about the
060 timings
some months ago.

...and let's not forget Phase5!!!
GO ON! We're all waiting for the A\box dream to come true!!!

1.9 Changes from previous version (v1.0)

This release is a bug fix for the 68000/010 CPUs:
v1.0 used to crash due to some silly odd memory accesses...
many apologies...

Let's thank Timo Ronkko for his detailed bug reports;
here's the output of his 68000:

CPUSpeed v1.2 (5.3.97) - by Simone Bevilacqua

```
CPU: 000
FPU: N/A
Approximate results:
CPU Cycles per Raster-Line : 2302
CPU Cycles per 50th of sec.: 720672
Estimated Clock Frequency : 36.033800 Mhz.
```

36Mhz?! yeah, not a bug, just a little overclocking...
and he doesn't seem satisfied, yet!!!
