

# **Savage060\_english**

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<b>COLLABORATORS</b>
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	<i>TITLE :</i> Savage060_english		
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
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<b>REVISION HISTORY</b>
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NUMBER	DATE	DESCRIPTION	NAME

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## Chapter 1

# Savage060\_english

### 1.1 Savage060 Main Menu

Savage-videodriver for 060 Amigas  
For ShapeShifter Macintosh Emulator  
Version 2.00

What's this?	The driver's description
Requirements	Required hard & software
What's the MMU?	Technical description of the MMU
Tech stuff	Tech stuff about the driver
Configuring	How to configure the driver under ShapeShifter
Refresh rate	Setting the refresh rate
Testresults 15bit	15bit tests & results
Testresults 8bit	256 colors test & results
Testresults 4bit	16 colors test & results
Used things	Used hard & software
Author	Who did it?
Support sites	Where you find the new versions of this driver
To do...	Things to do...
History	Differences between the versions
Thanks	The author wishes to thank..
Copyright&Registration	Registration & Copyright

### 1.2 Required hard&software...

Requires:

Kickstart 3.0+ (for the 4bit modes too!!)

an AGA Amiga

A turbo/processorcard/processor which contains 060 (maybe works on 040 too)

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ShapShifter3.2 or newer... (Tested only under 3.5)

MUCH Fast memory...

### 1.3 What's diz?

Sadly the ShapeShifter's internal MMU driver is a bit slow, and the other non MMU based drivers slow down the emulation speed, when none (or few) pixels changed since the last refresh.

So i developed this driver , because with the help of MMU only these lines need to be freshen, which changed since the last refresh. Because this is detected by hardware-way, you able to try ShapeShifter with refresh rate 1 ! (without big slowdown!!)

### 1.4 Technical description of the MMU

Lets start with the name:  
MMU = Memory Management Unit

As you can see its mission to do some things with the memory handling.  
(example: write protection, cache inhibit, showing the memory changes, others)

But the AmigaOS (yet) doesn't support the memory handling wit MMU, so the MMU is doesn't need to be in an Amiga.

Only some applications use it, where its really need: enforcer, VMM, cpu fastrom option, all UNIX and the LINUX, because almost unable to emulate it via software. (i can say UNABLE to emulate it via software way)

As you can see the MMU is a memory handling unit, so unable to do other thing to do (example: chunky->planar conversion) Because many people think it from the option of the ShapeShifter called "MMU refresh", how the MMU make the refresh, but its DON'T TRUE!

The 68060 after the boot from the 68060.library turn on the mmu, and this driver try to use the default 68060's MMU config.

And when we divide the Macintosh video memory to exam: 4kb size pages, the mmu is able to show how there was a difference in this page, and if yes, then we need only convert this chunk.

Ok that's all about MMU. If you interested by other technical information about this

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driver then take a look to Technical description!

## 1.5 The technical description of the Driver (only for experts .... :)

As i said it at the MMU part, this driver does not other, only convert the changed parts of the display (which displayed by the MMU) from chunky to simple Amiga planar mode. ↵

This driver works only when the used processor/processorcard uses the following MMU configuratuion: ↵

```
RootPageTable 32 Megabyte
LevelA PageTable 256 Kbyte
LevelB PageTable 4 Kbyte
```

(so if you dont understand it, simply if your processorcard uses other MMU configuration this driver will dont work ;)

## 1.6 Configuring the drivers under ShapeShifter

Simply copy the drivers to the directory called "Video Drivers", because that is the default searching path of the external video drivers. ↵

As you can see here is three drivers: all resolution is 640x480, and there is 4, 8 and 15 bit versions. ↵

That's simply why: because only these resolutions is "legal" mac resolutions. (the mac's no have 640x400 or 640x512 ..... resolutions)  
With these two resolutions to able to reach the higher compatibility.

8Bit drivers:

Ok. Let's start with 640x480:

First you must select the external which you wish to use, the resolution (as here is everytime 640x480 with all drivers), the amiga viewmode, and the number of colors to 8bit-256 colors. ↵

4Bit drivers:

At this is very similar like the 8bit driver, but -ofcourse- you must select at here 16color mode. ↵

15Bit driver:

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Here is only resolution 640x480 and ofcourse you must select 15bit colors.  
(That's will be converted to ham8)

Memory requirements:

The first turn off the largest free block option, and set by manual the memory size. ←

The driver's memory requirements:

Savage_640x480_8bit	856 kb	( 640x480 = 300kb+256kb for easier handling the MMU	←
		pagetable+300kb dbuff)	
Savage_640x480_4bit	556 kb	( 640x480 = 150kb+256kb+150kb)	
Savage_640x480_15bit	1488 kb	( 640x480 = 600kb+256kb+600kb+32kb ham8convtab )	

Sadly (you can see it ...) for the easier handling the MMU page all driver's need 256kb ←  
more memory than other ways....

So simply sub these values from the maximal memory and write it to the mac memory.  
(if the mac videoram, or other puffer located in the chip memory the driver will be ←  
opens a requester and quit. So sub a little bit more if you want sure to start it ←  
!)

But these values are the most bigger values, and its able to start them at smaller memory. (around 100-200kb smaller)

At last the setting the refresh is coming.

## 1.7 Setting

Because this driver uses MMU, you should first try it with refresh rate 1.  
(At the 15bit mode too!!)

This are recommended when changes an area of size around 320x256/frame, and requires ←

much CPU power at same time: little screen games, emulators (Hi Louise!), image manipulators. Or simply requires much CPU power: like ray-tracers, DTP programs.

But when you can use so program what makes many screen manipulation (ex: games) then you ←  
should try refresh 2.

Note: All values is for a 50Mhz 68060 at 256 color mode!

## 1.8 Test results-8bit

Testmachine: A1200-68060/50 Mhz 2meg Chip+16meg Fast

Software: Mac System7.5 (hungarian) 80 meg hd - ShapeShifter 3.5

(macintosh rom was everywhere in the fast memory - so the faster speed was everywhere) ←

I make the tests with Speedometer 4.0.  
 (The amiga8bit is ShapeShifter 3.5 internal driver)

1.0=Mac Quadra 605 (68040/25Mhz)

Driver:	Savage	Savage	Amiga8bit	Aga-Evd	AGAbboost
Version:	2.0	2.0	3.5	1.2	0.9
Refresh rate:	1	2	1	2	2
-----					
CPU:	3.232	3.254	2.867	2.283	2.708
MATH:	30.404	30.503	26.985	21.020	25.738
Benchmark Aver:	3.361	3.375	2.817	2.343	2.845
Color Quickdraw:	0.614	0.762	0.145	0.656	0.658

As you can see this driver offers you the higher CPU/MATH speed, and the color quickdraw value is high too (especially when you look, how its made with refresh rate  
 1...)

Here is some other test results with a program called: BenchmarkV1.0B3  
 (i write only the important test results, and here is all values in seconds, smaller values are higher performances)

Driver:	Savage	Savage	Amiga8bit	Aga-Evd	AGAbboost
Version:	2.0	2.0	3.5	1.2	0.9
Refresh Rate:	1	2	1	2	2
-----					
Moire:	2.33	2.13	11.28	2.28	2.17
Ripples:	5.72	5.62	14.42	7.18	6.87

## 1.9 Test results-4bit

Testmachine: A1200-68060/50 Mhz 2meg Chip+16meg Fast  
 Software:Mac System7.5 (hungarian) 80 meg hd - ShapeShifter 3.5  
 (macintosh rom was everywhere in the fast memory - so the faster speed was everywhere)

I make the tests with Speedometer 4.0.  
 The resolution is everywhere 640x480 16 colors.  
 (The Amiga4bit is the internal drivers o the ShapeShifter 3.5 , all other is external driver)

1.0=Mac Quadra 605 (68040/25Mhz)

Driver:	Savage	Savage	Aga-Evd	Amiga4bit
Version:	2.0	2.0	1.2	3.5
Refresh rate:	1	2	2	1
-----				
CPU:	3.231	3.238	2.685	2.950
MATH:	30.433	30.536	25.321	27.818
Benchmark Aver:	3.368	3.376	2.815	3.007



Color Quickdraw: 1.043 1.182 1.087 0.443

As you can see this driver offers you the higher CPU/MATH speed, and the color quickdraw value is high too (especially when you look, how its made with refresh rate 1...)

Here is some other test results with a program called: BenchmarkV1.0B3  
(i write only the important test results, and here is all values in seconds, smaller values are higher performances)

Driver:	Savage	Savage	Aga-Evd	Amiga4bit
Version:	2.0	2.0	1.2	3.5
Refresh rate:	1	2	2	1
-----				
Moire:	1.67	1.53	1.63	3.93
Ripples:	4.83	4.75	5.62	7.53

## 1.10 Testresults-15bit

Testmachine: A1200-68060/50 Mhz 2meg Chip+16meg Fast  
Software:Mac System7.5 (hungarian) 80 meg hd - ShapeShifter 3.5  
(macintosh rom was everywhere in the fast memory - so the faster speed was everywhere)

I make the tests with Speedometer 4.0.  
The resolution is everywhere 640x480 15bit.

1.0=Mac Quadra 605 (68040/25Mhz)

Driver:	Savage	Aga-Evd
Version:	2.0	1.2
Refresh Rate:	2	2
-----		
CPU:	3.202	1.666
MATH:	30.129	15.867
Benchmark Aver:	3.298	1.774
Color Quickdraw:	0.552	0.322

As you can see this driver offers you the higher CPU/MATH speed, and the color quickdraw value is high too (especially when you look, how its made with refresh rate 1...)

Here is some other test results with a program called: BenchmarkV1.0B3  
(i write only the important test results, and here is all values in seconds, smaller values are higher performances)

Driver:	Savage	Aga-Evd
Version:	2.0	1.2

---

Refresh Rate	2	2
-----		
Moire:	3.23	5.88
Ripples:	6.00	11.00

## 1.11 About the author

If you have any problems, suggestion, bug reports then write to:  
(send the registration fee here )

snail mail:                   László Török (pH03N1x/CDi)  
                              H-8900 Zalaegerszeg  
                              Cserfa 31.  
                              Hungary  
phone:                       +36 92 310 396 (after 18:00 CET)

E-Mail : phoenix@master.fok.hu  
or:        phoenix@fok.hu               (i think equal with the previous..)  
  
or:        torokl@orso.dfmk.hu        <- work

I think now i have an account on the Dark Millennium BBS So you can  
reach me under user name: phoenix (Thanks Dark!)

iRC (not so often..) : pH03N1x@iRC (#magyar, #amiga vagy #amigahu channels)

U can check my homepage at (a bit old): <http://www.fok.hu/~phoenix>  
(maybe dont work, becoz the home volume is fucked up...)

As u can see my english knowledge is very limited, and my german is MUCH better...  
(ich denke so... ;)

## 1.12 The support sites

You able to find the new versions of this driver on the following sites:  
Aminet: misc/emu subdirectory

and

Dark Millennium BBS:               (CDi WHQ/Crimson Jihad Distro)

phone: +36 93 320 679

HW: A1200-68060/50 18 meg ram 1.3GHD 6xCD-ROM 14.4k  
open: every day: 22.00-06.00 (CET)

Sysop: Dark/CDi

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## 1.13 Revision history

2.00                      First version for 060

## 1.14 To do list:

The c2p routine will be changed a CPU+Blitter routine. (CPU+Blitter rules... we ↔  
are  
on Amiga -not? ;) )

Fast 15bit->256 colors (332 dither) and 15bit->256 gray conversion

16 colors Workbench-window version (only on AGA)

Faster refresh on Graffity in 15bit and in 24 bit modes... (but first i need to ↔  
have a  
Graffity....)

## 1.15 Used hard & software

Hardware:

A1200-68060/50 (Blizzard1260) 2meg Chip + 16 meg Fast ← Dark Millennium server ;)

1084s monitor.... (its important... :)

2x80watt audio.... (its MUCH important... :)

Pioneer PD-S503 Cd player

Pioneer SX-303RDS receiver

This version is developed on CDi meeting (14.07.96-21.07.96 BalatonMária)

Most important peoples:

Toxin/CDi (american section)

Dæ@k/CDi&C^J (the very tall dude)

DarkSide/CDi (kübli colourer)

CaveM@N/CDi (the founder of the logical coder section)

G@æ\$\$/CDi (Slamtilt tester/graphician)

Flex/Framel8 & CDi (who heard the CDs & kübli tracer)

Józsi/CDi (arrghh... PC section.... & transporter )

And me: pH03N1x/CDi

Used things on the meeting:

Food:    30 piece of luncheon meat

         15 piece of egg

         12 kg of bread

         40 Liter Cola/Fanta etc.

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Milk, Paprika, Tomato  
20 kg peach (from the nearest peachtree)  
Some alcohol.... (hukkkk...)

Trash: around 30kg trash  
2 telefoncards  
1 rentabike (smashed by Flex... -3000Ft 8( )  
210 MegHd partition (Darkside's DH1: virus sux)

Many Worms+Dogfight party (5 hours of continous Dogfight)  
Looking houndreds demos  
Girl hunting  
Toilette Debugger V1.0  
Mosquito killer V1.0 (one by Flex .. ) ;)  
Arabian terrorists on the beach of Balaton ;)  
Theoretical SW/HW developing (memory protection & very nice computer design)  
Making an unfinished AVI player (no sound)

Best sayings:

- "Darkside are you sleeping?" - at 2 AM.

- ....

- When are we going to bike again? (after Flex had an accident...)

- Who dranked my Coke?

- At the evening it was full!

- This all stored MPEG anim !

- How can i slowing down the MPEG-player? (on 060)

- U fool!

- Darkside open the tap!

- There is a spider! Who has a matchbox? (around 3km far from the meeting place)

- U Sucker!

- Jump jump! - And a german people:

- Alles Klar?

- Fingomcsing!

Others:

Ehh!, Kübli

IIIIIIIIIIIIII VEEEEEEEEEEERYYYYYYYYY HAAAAAAAAATTTTTTEEEE THHHHHHHHHHEEEEEEEEEEE  
ROOOOBBBBBEEERRRRRTTTT MMIIIIILLLEEESSS CCCCCCCCCCCCCCCCCDDDDDDDDDDDDDDDDDDDDDDDDDD!

(I (pH03N1x) have to heard it about 100 times - Flex arrrrrggh )

Software:

Shapeshifter-ExeternalVideodriver manual level2 by Christian Bauer

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(A very good & usable manual & driverspecification description) ↔

Asm-one 1.20 ..                      Around 4 new bugs detected...  
 MMU Expert 1.32                    by F.Bürgel... (oldie but goldie! (from 1991))  
 HippoPlayer 2.23                    need some zax for developing...  
 D68k 2.0.7                          The best resourcer on Amiga (i think better than resource ↔  
     6.0)                              (FULL MMU,FPU,68000-68060 support!)

This file checked with the MacWrite Spelling checker... (From Shape...)

19 Guru (reported by MCP gurureport) (from MMU config error to corrupt memory list ↔  
     in  
 freememen and some illegal instruction so Amiga rulez... ;) )

## 1.16 The author wishes to thanks:

The author wishes to thanks:

Christian Bauer	For the World's best Macintosh emulator, and the awesome external videodriver concept
K-P Koljonen	for Hippoplayer
Psycho@master.fok.hu unusable ;) )	for the account,and for the free HDD(almost ↔
Pawel Hernik too)	for AGA-EVD, and for the c2p routine (and 4bit c2p ↔ and for the 15bit->ham8 conversion routines (this ↔ is a very fast&good routine!)
Peter McGavin	for the fastest c2p routines on Amiga
Chris Brenner	for FastECS
Michael 'Xanth' Spenner	for the 2x2 version idea
Dennis Arketyd	for the Agaboost driver

AND: ALL REGISTERED USERES!

Other greetinx:

Amiga: Dark/CDi, Shamen/CDi, Flex/Frame18, Anorganic/Promise, Pogi/Crimson Jihad  
 Hanzi/???, Chexum

Louise/Amiga Only	-	A ShapeShifter maniac... ;) (like me...)
All members of Amiga Only		<- The best Hungarian amiga-user mag

PC: Basq/Tsi Alive, Trajic/Hydrogen, Hamster/???, Dada

Last, but not at least: the Developers of the Amiga and AmigaOS (yes this is a ↵  
really  
OS -okay, have some bugs- , but really fun to develop under it!!)

Fuck to all PC-owners who's think how Amiga is a game-machine...

## 1.17 Legal mush

This driver is SHAREWARE. This version works around 3 minutes - at refresh rate 1  
(thats must be enough for testing), after stopps to work (You can exit from shape ↵  
with the following keys: LAlt+LShift+Control+ESC), and the demo-archive contains ↵  
only  
the 256 color version. (i think you discovered it..)

Use it at your own risk.

If you want include this driver on a CD-ROM/or magazine i would be very happy when ↵  
you  
send me a free copy from it.

If You want to register it please send 15DM or 10US\$ in !CASH! to my postal ↵  
address

and an error free 3.5 DD Disk, and an answer envelope too!

Or: Send money to my postal address, and write to my e-mail, and i will send back ↵  
the  
driver encoded with uuencode. (or better: send your PGP public key)

The update fee is 8DM or 5US\$.

Amiga and the AmigOS is registered trademark of Amiga Technologies or Viscorp  
(i don't know it exactly... it changes to often..)

Macintosh is registered trademark of Apple computer INC.

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