

## **TMapFAQ**

**COLLABORATORS**

	<i>TITLE :</i> TMapFAQ		
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
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**REVISION HISTORY**

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# Chapter 1

## TMapFAQ

### 1.1 Amiga Texturemapped Games FAQ V 1.05

Amiga Texturemapped Games FAQ V 1.05

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### 1.2 Amiga Texturemapped Games FAQ V 1.05

Introduction

- 1. [History](#)
- 2. [What is Texturemapping ?](#)
- 3. [What are the problems of Texturemapping on the Amiga ?](#)
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### 1.3 Amiga Texturemapped Games FAQ V 1.05

History

V 0.1 First release

V 0.25 Added some more demos, layout is 80 characters/line

V 0.26 Added History, layout is 75 characters/line

V 0.3 Added some additional info, added 3d-demo,  
added Albas engine, added Wayne engine, added

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source section.

V 0.35 Added A1200 smoothness values. Thanks to all the people who sent me email, by the way... they help improving the FAQ :))) Added some frame rates ...

V 0.4 Added short reviews of TextDemo57 and Alien Breed 3D

V 0.5 FAQ converted to AmigaGuide format by John Corigliano

Basics of Raycasting article added by John Corigliano

Some minor changes in the introduction by me.

Invitation to the second TMap converence on irc at 1st March.

V 0.55 Added info about Union Interactive's engine.

Added full review of the current working executable of Reality AGA.

Added Basics of Copper Chunky chapter.

Keep on sending algorithms, coder guys !!!

V 0.60 Added info about the game that will be made out of the Motion engine.

Added info about ongoing work with Warp\_S.

Added info about Waynes Engine.

Added info about John Hendrikx RTG library project

(section TextDemo57). Graphics Libraries for use in games.

Corrected some minor things.

V 0.61 Added some BAD news about DSA 2 in the info section

Added some GOOD news about Whales Voyage II in the info section

Info about third texturemapping conference in may included

V 0.65 Added latest info about Albas engine ("Breathless")

V 0.70 Included information about preview of Commercial Fears, the first real playable DOOM clone demo on Amiga, with Monsters and all...

Some info updated in infos and rumour section

Some questions from me :

1. Does anybody know, what got out of POOM ? If i remember correct, it was said, the REAL V 0.3 should be there in April... now IS April... :)))

2. Somebody interested in another texturemapping conference ?

By the way, at 20th/21th April Commodore will be sold !!! :))))))

V 0.71 Included some things i heard about a game called Za Zelazna Brama

(and yes, the source IS reliable...), updated info about commercial Fears...

V 0.73 Latest info about Warp\_S, POOM, Dentaku26 and AlienBreed3D included...

Updated rumours section.

V 0.74 Included info about rtg.library

V 0.75 Created game-demos entry about Gloom

Included info about possible pickup of Rot3D engine

V 0.80 Updated info about playable Beta of Warp\_S (!!!)

Updated info about Gloom

V 0.85 The statement about Gloom being No-AGA was wrong. I corrected this.

I inserted the info about Phoenix, a new engine.

V 0.90 Added information about Damagewolf, Lech and Deep. Added rumoured release dates for GLOOM, AB3D and Whales Voyage II. Added something about another texturemapping conference (the third...) in June.

By the way, if i do not list your FAVOURITE not-Game-Demo, sorry...

there are SO MUCH Not-Game-Demos... simply send me mail what Not-Game-Demo you want to get included (but i think that FAQ will now mainly review the Game-Demos...)

Added latest info about rtg.library

V 0.95 Corrected bug in V 0.90 (concerning DamageWolf)

Added info about "Behind the iron gate"

Added info about "Frank's Engine"

Added info about "Donald's Engine"

Updated info about Fears, Textdemo and Dentaku26

V 1.00 Updated info about Behind the Iron Gate

Updated info about Union Interactives Engine (GREAT NEWS !!!!!!!!! :)))) )

V 1.05 Updated info about Fears (New demo !!!) and Dentaku26

Included info about Whales Voyage II Demo

Updated info about Switchworld, DamageWolf and rtg.library

Updated info about the Amiga Texturemapping Conference

Updated rumour department

From now on, the latest version of this FAQ is available over WWW

on <http://www.informatik.uni-stuttgart.de/fachschaft/adressen/haeuser.html>

## 1.4 Amiga Texturemapped Games FAQ V 1.05

What is Texturemapping ?

Texturemapping is a method of wrapping bitmapgraphics around vectors or 3D based graphics in common. For games, texturemapping is mostly used doing very realistic Dungeons.

In contrary to a dungeon like in Dungeonmaster or Eye of the Beholder, the player is not limited to some few directions, but he can turn around in TRUE 360 degrees, like in real life. Often the graphics gives a more realistic feel than the graphics of such block graphics games and especially the opponents of the player are done very well

(using texturemapping and vector graphics ...)

Texturemapping is used for role playing games and for dungeon action games (some of them able to handle more than one player at the same time).

The most famous such games are Castle Wolfenstein and DOOM. Castle Wolfenstein is for PC and Mac, DOOM is for PC (and soon for Mac too).

There are probably more texturemapping action games than texturemapping role playing games.

The original creators of DOOM did no port to the Amiga and won't do so in the future. All the talk about "Amiga DOOM" is to do a similar game on Amiga, not the original DOOM. Most people speak of "Wolfenstein style" and "DOOM style" graphics engines to describe how GOOD the used texturemapping in a game is. DOOM engines are superior to Wolfenstein engines.

## 1.5 Amiga Texturemapped Games FAQ V 1.05

What are the problems of Texturemapping on the Amiga ?

Texturemapping needs to put single pixels to a screen, not only LINES like in vector graphics. So you need both a fast CPU and a fast graphics for doing texture mapping.

On PC (and on Mac) the color of each pixel is described by ONE BYTE... this is the so-called CHUNKY PIXEL MODE. On Amiga, the color of each pixel is described by EIGHT VALUES (for 256 colors). This is the so-called BITPLANE GRAPHICS. Easy to understand, Chunky pixel is better for texturemapping than bitplane graphics, as bitplane graphics only has 12.5% of the speed of chunky graphics (if you take a simple algorithm that only takes one pixel at a time. Of course you can speed things up handling 8 pixels at a time (eight Bytes). Of course, if you take less than 256 colors the speed is better, and i was told, in this way you even may get a better speed than doing chunky graphics.

Second thing, even if the 68040 is very fast, not everybody has got such a thing(i have :))) ). But on PC most gamers have got a 80486 (Which probably is slower than the '040, but much faster than the '020). It is probably not possible doing texturemapping with an 68000. In addition, texturemapping should probably have 64 colors AT LEAST (maybe extra halfbrite on ECS ...)

Third, a lot of companies let the Amiga alone (Booooooh... :((( ), and in special they did not want to risk coding something DIFFICULT on Amiga. And some coders simply are moronic DOS-lovers (greetings to ID Software (they did DOOM) and to Richard Garriot of Origin at this place... i hope they "\$"&\$/&\$/&\$/& (censored) !!!)



## 1.6 Amiga Texturemapped Games FAQ V 1.05

How can Problems of Texturemapping on the Amiga be solved ?

### A) Copper Chunky Modes

I told you before, that the Amiga is not capable of doing chunky modes. That is not 100% the truth. There is a type of copper cheat (the copper is one of the Amiga's graphics coprocessors), that in fact DOES chunky modes. The problem with this graphics mode is, it can only handle a resolution about 100x100 to 130x120 pixels (i do not know exactly, as i am no specialist in coding texturemapping ...) Compared to PC Games with 320x200 texturemapping this may look ugly ... (but it should be mentioned, games on PCs (at least on PCs that are not these absolute high-powered ones...) often do not use full screen graphics, and so often too use such resolutions. Copper chunky can't do 1x1 or 2x1 pixel resolution or something like that (i do not know exactly what are the limits for that Copper tricks... maybe an expert inc coding such things could tell me ?) Of course, to get a real nice graphics it is better to take the more CPU intensive Chunky to Planar routines... just compare Alien Breed 3D and TextDemo57 :)))

### B) Chunky to Planar Conversion Routines

A Chunky to Planar Conversion Routine is a part of a texturemapping code, that takes graphics in chunky (one Byte per pixel) as input, and puts it as Bitplane Graphics on the Screen. Of course, this method needs much CPU-power. For most demos/games, you should have at least a '030 to get it smooth... and a lot of demos using this technique do not have FULL texturemapping... that is, they for example have no stairs, and everything on screen is on the same height level. Copper Chunky does this better, but has a low resolution... of course a '040 with a Conversion Routine can do fine things...

### C) Using a graphics board

Graphics boards for the Amiga do not use Bitplane graphics, but, in fact, Chunky graphics. The problem is, not many people have such boards in their systems, in difference to the PC, where all graphics is based on such boards. But some coders said, they maybe will do an additional "graphics board version", that features the fast graphics chips with their chunky graphics... there is even a texturemapping demo running on EGS (EGS is a standard for Amiga graphics boards).

### D) Demo-Groups do the Games

As those people who can do texturemapping best (on PC) often are

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DOS-lovers, on Amiga a lot of people of the demo-scene and others, who are not employed at software firms, began to code... and as software firms want to SELL, they will probably sell the finished products, even if they are Amiga-only... And of course there are firms DEDICATED to the Amiga, like Team17 ... they are in this texturemapping business, too ...

## 1.7 Amiga Texturemapped Games FAQ V 1.05

Short reviews of all demos/games known to me

1. [Demos](#)
2. [Game-Demos](#)
3. [Games](#)
4. [Sources](#)

The short reviews are done in a specific format, mentioning Name, Author Name (or name of one of the authors), Minimum System, Recommended System, Engine style, How smooth the scrolling is and how good the pixelresolution is. Then they are followed by a short description of the demo (of course i could say more of the most, but there are a lot of demos reviewed...) Then i list the E-Mail of the author (if available) and where on Aminet sites to find the demo (if possible). I recommend using ftp.uni-paderborn.de or src.doc.ic.ac.uk or another site with complete Aminet. Some smaller sites only have got the latest uploads to Aminet. Wuarchive is a good choice, too. And there is another good site called ftp.netnet.com or something like that. You could look at ftp.luth.se, too.

All speed remarks are relative to my own system (hehehe...), an A4000/040 with 14 MB RAM and a Piccolo SD64 graphics board (not the standard Amiga, isn't it ?) If you have an Amiga 1200 without accelator and did some tests you may wish to mail your results to me ...

I have to remark too, that the comments are NOT objective... i like some demos and games, and do not like others... no one should take it as an insult, if i give his favourite demo a bad mark... it is only a try done by me... if you think the other way round, tell me... maybe you can convince me to change the FAQ as to one specific demo :))) I chose to be STRICT in the remarks i had to do ... in order to show the differences between the tested engines ... but of course i know how much work it is even to do a texturemapping demo in LOW resolution with a TM-Engine that suxx...

Sometimes i wrote something like Low/Wolf... then i did not want to say Low, and not Wolf... again... everything very subjective ...

Ah... about that "recommended system" things... Just guesses...  
Nearly all of the demos are on Aminet and for most of the demos  
you will find in the FAQ in which directory. Most of the demos  
also are (for the Germans reading this FAQ) available on the  
Birdland BBS (number found at the end of this FAQ).

## 1.8 Amiga Texturemapped Games FAQ V 1.05

Minimum/Recommended System

All = All Amigas with 1 MB chip at least

020 = All Amigas with 68020 at least

AGA = All Amigas with AGA

030 = All Amigas with '030 at least

040 = All Amigas with '040 at least

060 = All Amigas with '060 at least (Joke! :))) )

FPU = All Amigas with FPU at least

EGS = All Amigas with EGS graphics boards

- Click Retrace to return...

## 1.9 Amiga Texturemapped Games FAQ V 1.05

Engine style

Low = Engine worse than Wolfenstein,

Wolf = Wolfenstein-style engine

:) = A little Better than Wolfenstein, worse than DOOM

:):) = MUCH better than :), but not DOOM ...

DOOM = DOOM-style engine

Bey = Engine BEYOND DOOM

Simply SUXX = This is the special entry for the 3D Part of Jurassic Parc :)

- Click Retrace to return...

## 1.10 Amiga Texturemapped Games FAQ V 1.05

Smoothness

VSm = Graphics very Smooth

Smo = Graphics smooth

NSm = Graphics nearly smooth

Not = Not very smooth graphics

- Click Retrace to return...

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## 1.11 Amiga Texturemapped Games FAQ V 1.05

Pixel resolution

Cop = Probably copper chunky or some other copper cheat, maybe i am wrong. In special CopL says low pixel resolution, CopM medium and CopH says high resolution (but i think it is impossible of doing a copper display with a pixel resolution you could call HIGH). CopM probably is worse than Med. I used the CopL-CopM abbreviations only to have SOME METHOD to differentiate between different kinds of copper displays.

Low = Low resolution (probably something around 2x2 or worse...)

Med = Medium resolution (probably something around 2x1 or 1x2 ...)

High = High resolution (probably 1x1 ...)

- Click Retrace to return...

## 1.12 Amiga Texturemapped Games FAQ V 1.05

Coded by

(P) = Single Person

(G) = Demo group

(PO) = listed person is one of those doing the thing... but there are others...

(SF) = Software firm

- Click Retrace to return...

## 1.13 Amiga Texturemapped Games FAQ V 1.05

Demos

Only Demos with texturemapping parts that could be used in games are mentioned... no textured spheres, cubes and such things... all things mentioned in the chapter "Demos" will probably never get games ...

[Mindflow](#)

[Motion](#)

[Doomed](#)

[Phobos](#)

[Fullmoon](#)

[HOI-SAGAIII](#)

[Waynes Engine](#)

[Lech](#)

[Deep](#)

## 1.14 Amiga Texturemapped Games FAQ V 1.05

Mindflow Stellar (G) AGA (4 MB RAM) AGA (4 MB RAM)

:) NSmo CopL

One of the effects of this demo is a dungeon that looks nearly like the dungeons of the game Ambermoon. The textures of the ceiling and floor are MUCH better than in Ambermoon, but Ambermoon is smoother ...

Author : Stellar (One email of a Stellar-Member is

jsaarinen@kone.fipnet.fi, this is Nose/Stellar)

File : /pub/aminet/demo/aga/mindflow.lha

**System Engine Smoothness Resolution Coded By**

## 1.15 Amiga Texturemapped Games FAQ V 1.05

Motion Bomb (G) AGA AGA

:)/DOOM Not/NSm CopL

One of the effects of this demo is a FULL texturemapped DOOM engine with stairs and all. Bravo, Bomb !!! You should do a game out of this :)))

This demo did not run on my A4000/040, but i did get a patch from someone... i do not think this patch is on Aminet, though ... one last word to the engine... there are stairs and all included, but the Speed i think is not that sufficient for a game ... okay for a demo though...

The walls are only rectangular.

Latest info about this : Bomb decided to do a game with this engine, and the game is already 85% complete. It will be called FEARS (a little strange, as Bomb already released a Wolfenstein clone with this name).

But this FEARS will use the Motion-engine. It should be out next month.

It will be a commercial game. Bomb started a new company called Manyk to market this game. As soon as i know more, i will move the Motion entry to Game-Demos.

Some Info even later : A preview of this game ("Commercial Fears") is out.

Take a look to the game-demos-section about it...

Author : Gengis/Bomb

File : /pub/aminet/demo/par94/MotionDisk1.dms

/pub/aminet/demo/par94/MotionDisk2.dms

**System Engine Smoothness Resolution Coded By**

## 1.16 Amiga Texturemapped Games FAQ V 1.05

Doomed Pearl (G) All All

Low VSm CopL

A demo where you can use the joystick to wander around... but i decided not to do it to the Game-Demos, because the only intention to do this one was, to prove it is possible of getting 50 fps on a plain A500. Someone of Pearl tried to enhance the engine, but as this did not work, the demo died. Talking about resolutions, there are copper chunky demos with better resolution.

Author : Netrunner/Pearl (9308938m@lux.levels.unisa.edu.au)

File : /pub/aminet/demo/euro/Pearl.Doomed.lha

[System Engine Smoothness Resolution Coded By](#)

## 1.17 Amiga Texturemapped Games FAQ V 1.05

Phobos Cydonia (G) All (???) All (???)

Low Smo CopL

One of the earlier approaches to Amiga texture mapping. It has no floor textures and turning around does not look like it SHOULD... but asides from that the speed is impressive. You can use your joystick to walk the dungeon, in contrary to most not-game demos. The resolution is weak.

Author : ???

File : ???

[System Engine Smoothness Resolution Coded By](#)

## 1.18 Amiga Texturemapped Games FAQ V 1.05

Fullmoon Fairlight (G) AGA AGA

Low NSm/Not Med

Even if Fullmoon is a very nice demo, the texturemapping part is not very well done. The scrolling is not smooth, there are no floor and ceiling textures and the resolution is low. The not texturemapping related parts of the demo are nevertheless great !

Author : ???

File : ???

[System Engine Smoothness Resolution Coded By](#)

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## 1.19 Amiga Texturemapped Games FAQ V 1.05

HOI-SAGAIII TEAM HOI (G) AGA AGA

Low NSm/Smo Low

The texturemapping part of the demo has no ceiling textures, and the floor textures are not very well done. The speed is better than that of most such "little hacks", but there are better texturemapping demos than this one. Aside from this flaw, HOI-SAGA III is (looked upon as demo in common) okay.

Author : Teamhoi@SterBBS.nl (or was it TeamHoi@SterBBS.nl ???)

File : ???

[System Engine Smoothness Resolution Coded By](#)

## 1.20 Amiga Texturemapped Games FAQ V 1.05

Waynes Engine Wayne Mendoza ??? 020+Fast Ram

DOOM ??? ???

This one will be DOOM-like graphics. But sadly Wayne\_m said on irc he would probably not do a game with it. I HOPE he changes his mind about this :)) I do not know what the final name of the thing will be.

According to the author, The engine runs with 24-30 fps on a 4000/040, 14 fps on a 1200 with Fast Ram. There are 1x1, 1x2, 2x1 and 2x2 pixel resolutions available. It uses c2p and NO copper tricks. Uses Data from DOOM .wad-Files.

Author : wayne@msq.ruhr.de

File : Not yet available

[System Engine Smoothness Resolution Coded By](#)

## 1.21 Amiga Texturemapped Games FAQ V 1.05

Lech Freezers(G) ??? 020+Fast Ram

:) Smo/VSm Low/Med

A little dungeon effect doing 10 fps on an A1200 with Fastram. Looks a bit "Ambermoon-like". The rest of the demo is fine too...

Author : ??? (Freezers probably :)))))) )

File : On Aminet ? Maybe ftp-Site "Papa" (on irc /dcc chat Papa,/query =papa,ls)

## 1.22 Amiga Texturemapped Games FAQ V 1.05

Deep Parallax (G) AGA AGA

Wolf VSm CopL

Nice effect with a blurring chunky copper dungeon, but probably not useful for a game. Nice effect in a nice demo... by the same Group like POOM... (by the way, if someone of Parallax reads that... someone from your group (i think it was Bandog) said some time ago on irc, there would be soon a new POOM release... what about that ?)

[System Engine Smoothness Resolution Coded By](#)

## 1.23 Amiga Texturemapped Games FAQ V 1.05

Game-Demos

Game-Demos are Demos that are probably on their best way of getting games.

Some of them actually will get Games, some not ...

[Warp\\_S](#)

[POOM](#)

[BSP](#)

[Tmapdemo](#)

[Dentaku26](#)

[ChunkyMaze](#)

[TextDemo](#)

[Rtg.library](#)

[Phoenix](#)

[Commercial Fears](#)

[Gloom](#)

[Reality](#)

[Albas Engine](#)

[Alien Breed3D](#)

[Dogenstein3D](#)

[3D-Demo](#)

[Union Interactives Engine](#)

[Wolf23\\_ish](#)

[Wolf3D](#)

[Rot3D](#)

[DamageWolf](#)

[Frank's Engine](#)

[Donald's Engine](#)

[Whales Voyage II](#)



## 1.24 Amiga Texturemapped Games FAQ V 1.05

Warp\_S O. Groth (PO) 020+HD AGA + Fast Ram

:):) Smo/Vsm Low/Med

Really a nice engine, the only DOOM style engine on Amiga with monsters running around. This one will be a game 100%. Playable demo will be out maybe February or March. The resolution and graphics are not the best at the moment, but the next Demo out will (according to the beta i saw) be much better. They got a new graphician, who is very good (i know this one :))) ). Maybe the most promising demo of them all. It will get a graphics board version, too, and an extra version that is '040-optimized (higher resolution !!!) was promised sometimes... Was in the beginning called Texmapp... The release version probably will be faster than the demo. Uses not only 90 degree walls. Decompresses monster GFX in real time. Just got a new beta from Oliver. Some bugfixes, you can shoot (but there is no explosion graphics yet) and you have the option of doing a speedup of the graphics. And next beta : You can get objects lying on the ground (munition) and you can shoot with real shooting graphics. The monsters shoot back. But nobody dies, and the shooting graphics is up to now a bit poor.

Latest info : Soon they will have finished a Beta release, which is PLAYABLE... but probably only the NEXT version after this beta will get a public release... they are working hard on graphics board versions, are interested in versions with WB-Emus as well as in John Hendrikx rtg.library. They are looking for contacts to software firms currently.

Interested firms would get that Beta-Release as soon as this one is finished. NOW i got the playable demo. As to the level design there has to be done a LOT of work, but as to the graphics engine : It is fantastic. Now i would say Warp\_S is the most promising DOOM clone for Amiga. As to its features there is nothing new (maybe some smaller changes in the textures), but the greatest thing is, it is real playable. And NO copper chunky crap... on my A4000/040 it is still playable with around 200x136 to 240x136 with a pixel resolution of 1x1. 2x2 is VERY playable (probably on low powered systems too), but there some bugs with the graphics left. This version up to now does not run on graphics boards.

To talk another time of the features : No different height walls, but a nice resolution, explosions, fighting monsters (some sort of robots...), some things standing on the floor, not rectangular walls, bobbing movement. I do not know what is wrong with the frame rate in this latest

version. Some times i got 40 fps, sometimes 8 fps. But anyway, if the frame rate tells the truth or not, it is good playable (if you got a 030 at least or use 2x2... as soon as the bugs in 2x2 are fixed...)  
The window size is free configurable (but in y direction, 136 is the maximum...). The graphics is, as i said, really cool, for that sort of game on Amiga (because being playable AND high resolution), but there is no great gameplay up to now... but one thing after the other probably...

Author : O.Groth@link-M.muc.de

File : /pub/aminet/gfx/misc/warp\_s.lha

A1200 : Smoothness Smo

**System Engine Smoothness Resolution Coded By**

## 1.25 Amiga Texturemapped Games FAQ V 1.05

POOM Parallax (G) AGA 030+AGA

:):) Smo High

Maybe the most famous Amiga texturemapping demo. But it got very quiet around it since October '94. Maybe they dropped it? Or maybe they will bring out a complete game from one day to the other? There is a V0.3 on a finnish BBS ... the coders did some talk about a "maybe" graphics board version. POOM0.2 only has rectangular walls. The phone number of the Finnish BBS is +358 18 161 763.

POOM0.2 is on Aminet ... As to V0.3 Beta, it is much smoother, you can select a resolution from 32x32 up to 320x256 (the latter did not work on my system, though...), you see the gun and there are some new textures (a complete floor texture too...). As soon as you quit the Beta, it crashes. The Beta does not run with 2 MB. Someone said, the guys of Parallax would be working on something else at the moment, so the next release of POOM would be some time away.

THE AUTHORS DO NOT WANT THE 0.3b BEING SPREAD. The real V0.3 will be there somewhere in april.

Latest info : POOM will get the official V0.3 SOON, BUT NOT TOO SOON.

This release will feature different height walls, monsters, you can shoot, and simply, it will be nearly a game... at least, that Parallax guy on irc (Bandog) said so...

Author : Jussi\_Salmi@sonata.fipnet.fi

File : /pub/aminet/gfx/aga/poom\_02.lha

A1200 : Smoothness Not (V0.2)

**System Engine Smoothness Resolution Coded By**

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## 1.26 Amiga Texturemapped Games FAQ V 1.05

BSP John Fehr (P) All 040

DOOM Not Low/Med

This Demo reads an original DOOM-Wad-File and tries to interpret it. This is SLOW. The WAD-interpreter BSP has no ceiling or floor, but many features (because of the WAD ...) As it is No-Aga and not very smooth, i do not think it is more interesting than for example POOM or Warp\_S. But it was probably VERY MUCH work to make this thing reading .wad-Files ... and those multiple textures things probably cost a lot of speed too... there are AGA versions in the archive too... they too do not have floor and ceiling, but look better than the ECS-version ... I was told, it seems, John Fehr now is doing something further with his engine, but as to now i have no conformation from himself (so, what about, this, John, if you read this FAQ ? :) )

Author : fehr@rpm2.aes.mb.doe.ca

File : /pub/aminet/gfx/misc/bsp1.0.lha

[System Engine Smoothness Resolution Coded By](#)

## 1.27 Amiga Texturemapped Games FAQ V 1.05

Damagewolf A. Lankila All 030 + Fastram

:) Not-VSm

Damagewolf is another Wolfenstein 3D Clone on Amiga. From the abilities of the engine it is about the same as POOM V0.2 (but no doors and worse GFX). It has independent floor and ceiling textures and a lot of different textures. There are two different screen sizes and of each there are versions for ECS and AGA. The BIG versions are quite slow, the SMALL versions quite FAAAAAST.

The author now works on an "Amiga Rise of the Triad clone" engine. That is a DOOM type engine that supports JUMPING and such things. He wants to bring out a demo as soon as possible. As to texturesizes, he wants to use 64x64 and 128x128. He probably will use rtg.library, if it is out soon.

Author : andezl@kastelli.otol.fi

File : On Aminet...

[System Engine Smoothness Resolution Coded By](#)

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## 1.28 Amiga Texturemapped Games FAQ V 1.05

I did not see this demo up to now, but what i can tell you about it up to now :

The author is Frank Hoffmann, a guy with whom i swapped a LOT of mail since i heard of his engine. The engine is probably the first engine, that ONLY runs on graphics board equipped Amigas (!!!) It is a Wolfenstein Engine, but it even uses 15 Bit modes (>32000 colors !) It runs using CyberGraphics, but as the author is interested in maybe doing the CyberGraphics-version of rtg.library somewhen in the future, maybe we will see it running on rtg.library too... but up to now, no releases are planned...

[System Engine Smoothness Resolution Coded By](#)

## 1.29 Amiga Texturemapped Games FAQ V 1.05

Uuhm... i only know the name of the author from his email... it is Donald J somewhat... in any case, this engine is coded in AMOS. But no texturemapping, this time, instead, some blitter tricks, according to the author. The very early Beta i received shows nearly full screen, very fast 3D freely scrolling graphics (at least in turning around, in moving forward, similar to Deathmasque...). As it is no real texturemapping, the perspective is not ABSOLUTELY correct when turning around, but that could be the fault of the very early stage of the developpement too... it probably will be some kind of Wolfenstein engine. The author maybe will get a new graphician soon, but nothing sure... and he will probably switch from AMOS to C. The engine is coded on a 68000, and is not too slow on such a system... so if he manages to make it looking a bit more "real" (it looks quite fine, but as i said, not as good as some others...), that may get a great thing for the low end... even if he does not manage to correct this FULLY, it may get a REVOLUTION for 68000 games and maybe even 68020 games... there is no public release up to now and no one planned...

[System Engine Smoothness Resolution Coded By](#)

## 1.30 Amiga Texturemapped Games FAQ V 1.05

Tmapdemo C. Green (P) AGA AGA

??? NSm High

This demo comes with complete source... the author allowed doing a game with his routine (he probably won't do himself ...) The engine is quite cool, but very incomplete... just some blocks with Pics on the walls... no collision check... but a floor...

Author : [chrisg@commodore.COM](mailto:chrisg@commodore.COM) (this email of course does not work ...)

File : /pub/aminet/gfx/aga/tmapdemo.lha

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Tmapdemo S. Boberg (P) EGS EGS + EGS board

??? VSmo High

A Port of Chris Green's texturemapping engine to EGS... according to the author a quick hack... probably won't get any further...

Author : ???

File : ???

**System Engine Smoothness Resolution Coded By**

### 1.31 Amiga Texturemapped Games FAQ V 1.05

Dentaku26 A.J.Amsel (PO) AGA/CD32 AGA/CD32

Wolf VSmo CopL/CopM

Dentaku will be a Wolfenstein/DOOM-style game (probably with level editor and serial device support). A.J.Amsel said to me, a demo will probably be released in April 1995. An older demo (executable from September) is available on ftp.luth.se. According to the mail information A.J.Amsel gave me, he and the others formed now a software company which is called Silltunna Software. They are two Coders (one of them A.J. Amsel), one artist and Alistair Brimble doing the sound. The game uses a copper display for its texture mapping routine. If you are a coder, an artist or a sound specialist, you may wish to contact Mr. Amsel. Maybe you could join them in there project (Mail to A.J.Amsel@exeter.ac.uk). A former Demo of Dentaku was DentAWolf, but it has not much to do with Dentaku as it is now. The ratings for DentAWolf are Low/Wolf,VSmo,Low.

The version of Dentaku found at ftp.luth.se is only optimized for low end machines (but in my opinion it is good enough on high end machines... maybe there is even room for an improvement of the engine :))) And the engine does >20 fps on low end machines too...) On high end machines you can even do 50 fps. The graphics is of lower resolution as other games, but looks great anyway.

Not too much news about this one... Alex Amsel currently does Finals, as he said... and has not that much time for his game... but there IS work in progress at least... just little time ago, he told me, they intend to do MUCH MORE level design in the thing than other guys... they intend to get the leading Amiga 3D game as what level design concerns...

Some days ago i got some info from Silltuna Software concerning Dentaku26, including that Alex Amsel now again is fulltime coding for Dentaku.

And here the infos go (I write it here, like i got it from Silltuna) :

- HD installable
- Serial link AND splitscreen (and single player, of course...)
- cool soundtrack
- More monsters than in DOOM and DOOM II together
- Weapons : Single/Double barralled shotguns, 3 types of plasma guns, chainsaw, rifles, mini-gun, knives, missile launchers, laser pistols,...
- special effects : scrolling floors, walls, strobing, weather,...
- Dozens of different textures and (scrolling) backgrounds
- More GORE than any other Amiga game... you can even shoot the dead bodies...
- 2 death scenes per creature, dependent of the power of your weapon
- Lots of different scenery and graphics (and animated scenery and objects)
- Varying screen sizes
- Sound FX by Alistair Brimble
- Different behaviour for different creature types
- Wide variety of level design (10 different level designers...)
- Colored windows
- 25 levels, each level with a lot of secret areas
- Player inertia
- Power-Up system based on chemical intake
- Lots of lighting effects
- Walls of any angle and length
- Lots of cheat modes (the way this is done in DOOM...)
- 17-25 fps on a standard A1200

Author : A.J.Amsel@exeter.ac.uk

File : /pub/aminet/demo/aga/dentwolf.lha (DentAWolf...)

/pub/aminet/demo/aga/dentects.lha (Sept. Executable of Dentaku)

A1200 : Smoothness VSm

Frame : 50 fps on A4000/040

**System Engine Smoothness Resolution Coded By**

## **1.32 Amiga Texturemapped Games FAQ V 1.05**

ChunkyMaze D. Bryson (P) AGA AGA

Wolf VSmo Med

A little dungeon with flickering torches and some pictures pinned to the wall. It has no floor or ceiling textures and in some distance the textures do not look nice. But there are worse tries. This project is (even if there are better approaches) still alive, but as David Bryson

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told me, the problem is the TIME. Anybody willing to help him, should contact him per email. He did not do anything further by himself, but Lee Metcalfe did some very nice graphics for the demo, and Paul Heams coded a little further. David would like it, if someone with LOTS of time picked this demo up. He would help this one with the source, of course. I found a very similar demo on my harddisk (even the same textures...) which is called wolf. I think it is an earlier or later version of ChunkyMaze, but i do not have the docs.

Author : ceedb@cee.hw.ac.uk

File : /pub/aminet/gfx/aga/maze.lha

A1200 : Smoothness VSm

**System Engine Smoothness Resolution Coded By**

### 1.33 Amiga Texturemapped Games FAQ V 1.05

TextDemo5 J. Hendricks(P) 020 030

:) VSmo Med

In Fullscreen probably the fastest engine on Amiga (okay, POOM has floor and ceiling textures and is not much slower...). Textdemo has Lightsources, not-rectangular walls and the resolution and screen size can be customized. The demo has OCS, ECS and AGA versions. It uses some very tricky Chunky2Planar code (using even the blitter...). There is a TextDemo6 in work, and as i was told this one will probably be one of the best texturemapping demos on Amiga.

Author : john.hendrikx@grafix.xs4all.nl

File : /pub/aminet/gfx/misc/TextDemo5.lha

A1200 : Smoothness Not to VSm, according to screen size

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TextDemo57 J. Hendricks(P) 020 030+Fast Ram

:):)DOOM VSmo High

A long time, there was nothing new about Textdemo, but now it is on Aminet !!! And it is probably the BEST texturemapping engine available on Amiga, striking even Alien Breed 3D, POOM and Warp\_S. I hope the other coders won't take it this harsh and continue their projects nevertheless :). On a fast '030 or a '040 it FLIES at near full screen. I did it at 224x168 with 1x1 pixel resolution on my A4000/040 and that looked ABSOLUT PHANTASTIC. John Hendrikx claimed he will do a texturemapping engines for high end Amigas that will be AT LEAST as good as DOOM, if not better...

Some features :

- Realtime movement (smoother on better systems, but not faster than acceptable...)
- 128x128 textures (looks MUCH better ...)
- Multiple height walls :)))
- Floor textures (no ceiling textures yet...)
- "Bouncing movement" (I think the bouncing movement of TextDemo looks better than that of DOOM !!!)
- Object-mapping-code for monsters included (but no animated monsters implemented yet...)
- Textures take 24 Bit as original (so port to graphics board version would be easy)
- something that looks like water (and the bouncing movement looks like swimming :))) )

There are two teams doing games with this engine, John doing the engine itself. The first team (the "Shade-Team") are five guys. They intend to do a game with RPG elements that will be a mixture of DOOM, Dungeon Master and Magic Carpet. The other Team ("Mystic tank") is doing a two-person tank game.

Look forward to the next release (that shouldn't be an insult to the other coders, but TextDemo is really GREAT ... did a long way from Textdemo5).

Maybe with that graphics board talk it would be nice if John did a Cybergraphics version (if he reads this suggestion ... :) )

John currently leads a project for a set of graphics board custom libraries that offer a standard interface for coding games, with the same library calls on ANY graphics board. There are currently versions for Picasso II (by John himself), Retina (i do not know who does that version), EGS (by me) and if i heard right, Merlin, in the making.

The first engine that will use these libraries will be TextDemo6.

The libraries routines offer functions for opening/closing screens, writing chunky pixels in 8/24 Bit, choosing screenmodes, modifying 8 bit color palettes and double buffering. But it is probably some way to go till the library package will be released, as for some functions there is not even a specification of the interface. The current working name is "rtg.library" (good, joke, guys... Commodore never brought RTG to a release... now the Amiga users themselves will do it ... but probably this RTG is very different from Commodore's RTG ...)

TextDemo57 is a sort of pre-release to TextDemo6. (Yeah! It is possible



on the Amiga! :))))))))) )

In the meanwhile, TextDemo has floors AND ceilings... and John is beginning to convert the engine to rtg.library ...

Author: John.Hendrixx@grafix.xs4all.nl

File: wuarchive.wustl.edu/pub/aminet/gfx/misc/TextDemo57.lha

Frame: 8-26 fps according to screen and pixel resolution (according to the fps display... sometimes it seems to me better than the display says... at the low rates...)

**System Engine Smoothness Resolution Coded By**

### 1.34 Amiga Texturemapped Games FAQ V 1.05

Fears BOMB (G) AGA AGA

DOOM VS m CopL

As i wrote in the section about the Motion-Demo, BOMB started doing a game out of their engine. A preview of this game with one playable level is already out. (Yes, you can shoot the monsters, they shoot back, you can die, they can die, you can pick up things, and all that,...)

The engine looks very similar to that of the Motion demo, but it is MUCH faster and smoother.

And they say, the release version will be faster than the preview.

The only critics i could say about this GAME :

- The control keys are LAME (but in the preview is said they will change the controls till the release)
- If you go to the map, and then back to the game, the machine crashes... at least my A 4000/040... i think this is a BUG ... THIS BUG DOES NOT APPEAR ON A1200, as i now know... Please, BOMB, correct this Bug before the release... your game CRASHED on A4000/040, as soon as you go to the Automap and then back to the game...
- If you stand near a wall or corner, and start turning around, it looks a bit strange.
- I did not find any teleporters or lifting platforms in the demo
- The pixel resolution is LOW.
- It is not Harddrive installable

But anyway, with all that stairs, switches, monsters, weapons, bobbing movement, and all that stuff, this may be one main competitor for Alien Breed 3D. Bomb even announced a serial link option for the full version. And that resolution stuff... probably they can't change it much, because they do copper chunky. But to be reasonable, most of the games intending for a SOON release use copper chunky, and there, Fears does not look bad (of course it is no challenge for TextDemo, but TextDemo lacks of monsters, weapons and is no game up to now...)

I think maybe before such PERFECT texturemapping games like Shade and Brassman will come, maybe there will be some cool copper chunky games. Fears sure will be one of the leading ones...

The releasing company is called Manyk.

Frederic Heintz, the author, just said, there would be ANOTHER demo out THIS WEEK.

By the way, that "full version", that, according to Frederic Heintz (he reported it on comp.sys.amiga.misc himself), was illegally spreaded, is only a some MONTHS old Beta not intended to be spreaded !!!

At this point i want to emphasize : If you get Beta releases of future games from the author of a game... DON'T SPREAD THEM, IF THE AUTHOR DOES NOT WANT IT... about spreading Betas from someone NOT being the author, i probably do not need to say ANYTHING... this is as illegal as spreading the FULL VERSIONS !!! DON'T DO IT !!! You want those authors to continue their work for the Amiga, hmmm ? :)

New info : The June version of Fears looks a bit different. The textures are MUCH better, there is a dithering option added (makes the graphics look much less blocky), there are four weapons in the demo, and in the game menu there are menu items for a map editor and for serial link (but up to now these menu items do not do anything...). There are new monsters, too, that look much better. Everything together i would say, if i hadn't see it, i would not believe something like that with copper chunky possible... there are water textures (but no mirroring effects like in AB3D) and the whole thing turned from "motion demo that got a game" to a "demo of a game". You can now change screen sizes with function keys, by the way...

Ah, by the way, in Germany the game will be distributed by Attic... so it is a professional work now... :)

After all that positive things, now the negative ones :

- Still not HD installable
- Map still crashes on A4000/040 (on 030 it works...)
- There are some locations in the demo, if you fall down there, you will never come up again...
- turning around in a corner still looks a bit strange

Author : Frederik Heintz/Bomb

File : Aminet

**System Engine Smoothness Resolution Coded By**

## **1.35 Amiga Texturemapped Games FAQ V 1.05**

Reality AGA K.Picone(PO) AGA ???

Wolf Not High

This project is at present a Wolfenstein type engine that has up to now

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not made it to a public release. I got some infos about it :

- Aimed for A1200 and CD 32
- Static and moving objects
- Solid and see through walls
- Floor and ceiling textures (will be done later)
- 1x1, 2x1, 1x2 and 2x2 pixel resolutions
- walls at any angle and of any length
- 64 colour GFX, maybe soon 128 or 256 colour GFX
- external back drop pictures
- simple multi height walls
- graphics board version (will be done later)
- ECS/OCS version (later, with some reduction)
- 320x256 1x2 in 7-8 fps on A1200 with 4 MB Fast
- 320x256 1x1 in 5-6 fps on A1200 with 4 MB Fast

There will probably be a demo release in 2-3 weeks ...

As to the beta up to now... there are quite some problems the coder has with it and it is some way to go to a public released... it does not run optimal on A4000, because of the bigger caches and the slower chip ram, as the coder said. This will change in the future (i think the current speed is in no way related to the speed at the release version...) There is a polygon "monster" already in the beta ...

The graphics now changed to 256 colors...

Author: ???

File : Not yet publicly available

Frame : 8 fps on A1200 with Fast Ram

**System Engine Smoothness Resolution Coded By**

## 1.36 Amiga Texturemapped Games FAQ V 1.05

rtg.library is a Library project led by John Hendrikx (TextDemo), to provide a standard interface for coding Texturemapping with ECS/AGA AND graphics boards. The library contains the c2p routines of TextDemo for ECS/AGA. It provides code to directly access the video RAM of the graphics boards. Besides the ECS/AGA c2p routines there is NO texturemapping code in this library. It is coded in ASM. Up to now, there is work in progress for ECS, AGA, EGS and Picasso II. But the goal is to support ALL boards. Up to now there are functions (at least in the EGS version finished, i currently do not know how far John is with his code...) to o0pen and close screens,

do double buffering, get the addresses of the video ram of the Boards,  
and to support segmentation on the boards that need to do so...

With the addresses of the video memory it is already possible to use that  
library (functions for screen locking and unlocking are finished too...)

Later there will be library functions to write to the screen (but you can  
still do it yourselves then, by writing directly...) and for the graphics  
board blitters... The library will be freeware, so if you are interested,  
write to the authors !!!

Rtg.library got now most primary functions finished, and we are starting  
putting our code together. I just finished the Triple Buffering code in  
my EGS part of it, and there probably will be a "developer only" Beta soon...  
We have still to do some things about the Screenmode-Requester and finish  
to put our code together...

Up to now, rtg.library still is not out. But should be soon. Maybe the  
creators of Switchworld will do a Retina and a Impact Vision version of  
the library. Someone other maybe will do a Merlin version now.

Author : John.Hendrikx@grafix.xs4all.nl (nearly all of the code)

Me (EGS-version)

File : Not yet publicly available

Frame : Like TextDemo57, better on graphics boards

A1200 : Like TextDemo57

**System Engine Smoothness Resolution Coded By**

## 1.37 Amiga Texturemapped Games FAQ V 1.05

Albas Engine F. of Vision(G) AGA ???

DOOM ??? ???

A DOOM style engine

with 1x1 and 2x2 pixel resolution. It is done by the italian  
team "Fields of Vision". There goal is to do a DOOM type game  
that is playable on a standard A1200, but better on better  
systems.

The game will have NO copper screen and will support variable  
window size (320x200, 288x180, 256x160,....,32x20) and variable  
pixel sizes (1x1, 2x1, 1x2, 2x2), ceiling and floor textures,  
variable height floors and ceiling, lifts and doors, bouncing  
movement, sky textures in the open, animated textures, variable  
lighting, multitasking, AGA and Picasso II graphics board.

The game will be called Breathless and if this date is still valid,

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it will come out in June. The engine still gets optimized. It will get a commercial game. Up to now there are no demo versions (and probably won't be till the release of the full game).

The main author is Alberto Longo whose email is given below.

Author: [alblon@skylink.it](mailto:alblon@skylink.it)

File : Not yet available

Frame : 8 fps on 50 MHz 68030 1x1 320x200

16 fps on 50 Mhz 68030 1x1 224x140

22 fps on 50 MHz 68030 2x2 320x200

8 fps on A1200 + Fastram 2x2 320x200

[System Engine Smoothness Resolution Coded By](#)

### 1.38 Amiga Texturemapped Games FAQ V 1.05

Alien Breed3D Team17 (G) AGA AGA+Fast Ram

DOOM NSm/Smo CopL

The famous Alien Breed 3D Demo is finally there. What do i have to say ?

It is a full Doom engine based on chunky copper. The demo is non playable, but it seems to me, the game is nearly finished. I think the full game should show up in 2 months or something like that. The demo does not run on A4000 properly up to now, but it is said they will fix that before the release. The graphics resolution is low, but as to nearly finished games, it is probably the nearest to DOOM available on the Amiga up to now. I think it will sell fine. :)))

There is a playable demo for Alien Breed 3D out on Aminet. I think it plays quite cool (it supports Fast-RAM : ) ), but of course it is still a copper screen, and that probably won't change :( As to a rumour, there will be a serial link demo out in some time... The level design is much better as in Fears2, but there is no Automapping. The game runs perfectly even on A4000/040.

As to a rumour, we will have to wait till september for AB3D :((( I hope, this is not TRUE...

[System Engine Smoothness Resolution Coded By](#)

### 1.39 Amiga Texturemapped Games FAQ V 1.05

Dogenstien3D J.D.Doig (P) AGA AGA

Low/Wolf VSmo Low

Texturemapping engine where you can see the gun while walking around. As

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to the graphics, most other engines are better. I don't think this one is still around. The first version was called Dog3D.

Author : jasond@cee.hw.ac.uk (it seems, that this is no longer valid)

File : /pub/aminet/gfx/misc (if it is still there ...)

A1200 : Smoothness VSm

**System Engine Smoothness Resolution Coded By**

## 1.40 Amiga Texturemapped Games FAQ V 1.05

Switchworld Union Int. 020+Fastram 020+Fastram at least or CD32

:)-DOOM(???) Smo(???) Mid/High

SwitchWorld is a fully 3D texturemapped game, that will use NO chunky copper, and therefor it will support pixel resolutions from 1x1 to 2x2. Screen resolutions are available from 32x32 to 320x192. The calculation of the graphics will be done using the main processor (c2p...). It will work on DbIPal and on GFX boards too.

The CD32 version will use Aikiko and has music created by synthesizers. A special language for all objects will be used to make them programmable and more intelligent.

There are walls, floors and ceilings (floors of any height, steps etc. are possible...),

where floors and ceilings can be switched off or on. There are TEN weapons available, including grenades and flamethrowers. The game itself consists of five episodes, each

of them consisting of some stages. The game is, according to Union Interactive, fast on a A1200 with Fastram. On CD32 the speed will be achieved using Aikiko. If i got it

right, the AGA version will come first, an ECS version later. The game will be released BEFORE September (before AB3D and Fears...). A first running demo will be available end of this month on Aminet. :)))) This game is from the creators of "Behind the Iron Gate".

Latest info : Date for the demo now is first or second week of July. You may also want to read the transcript of the third Amiga texturemapping conference, where a guy from Union Interactive was present. If rtg.library will be out soon, Switchworld maybe will use it.

Author : Union Interactive

File : Not yet publicly available ...

**System Engine Smoothness Resolution Coded By**

## 1.41 Amiga Texturemapped Games FAQ V 1.05

Phoenix Posse (G) AGA 030/040

Wolf Smo/NSm CopL/High

This nice demo was done by Stuart MacLean of Posse Interactive Software (the coding). He is known as Bonez too. Graphics were done by Shamus and Artvark, and Music was done by Feekzoid.

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The engine is a Wolfenstein engine without ceiling and floor. It is only a single room, but there is a Mod in the background. A unique thing is : This demo supports two copper chunky modes AND 5 different resolutions in a c2p mode !!! I never saw something like that before...  
GOOD IDEA !!!

It does not run perfectly (i got some graphics errors on my 4000/040), and turning around is very slow. The mapping, though, is very fine, even if the walls stretch a bit. If that engine would not be that slow in turning around (but i am not completely sure if that is because it is that slow or because they wanted it that way...), this would probably be one of the leading engines. The graphics is smooth (but slow, as i said).

But in any way : Bonez showed he really KNEW how to do Texturemapping on the Amiga. And now the real BIG thing : This engine probably won't get developed any further, if i take it right. BUT Bonez will work on a NEW AND BETTER engine. Some of the features that he is promising : Full raycasting, matrix transformation, Z-Buffer algorithms, BSP tree structures for polygon storage, new and improved texturemapping routines and Cyrus-Beck polygon clipping algorithms. As he says he finished all the theory for it, and can start to do the coding :) What comes out of this shall be a commercial game by Posse called "Rise of the Dawn".

Author : s.a.maclea@pp.dundee.ac.uk

File : Should be on Aminet soon...

**System Engine Smoothness Resolution Coded By**

## 1.42 Amiga Texturemapped Games FAQ V 1.05

3D-Demo J.Corigliano(P) 020+2MB+OS2.0 030+2MB+OS2.0

Low/Wolf Smo/VSmo Low

The first try of a completely OS-friendly texturemapping engine. Does 9 fps on my A4000/040. As to the Smoothness i HAD to say VSmo, but the movement is very slow and you can see a bit of the screen refresh when you turn around. But if this is the first try (the file is not very big), maybe later versions will get much better. The main problem of the engine probably is the speed... maybe an updated graphics would enhance it too... up to now it does not have floor or ceiling textures and the other "serious" engines are better... but remember, that is not a public available demo version, but a first executable...

Author : jcorig@strauss.udel.edu

File : Not yet publicly available ...

Frame : 9 fps

**System Engine Smoothness Resolution Coded By**

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### 1.43 Amiga Texturemapped Games FAQ V 1.05

Wolf23\_ish Chris Colman(P) AGA AGA

Low VSmo Low

A "first try" texturemapping demo. In the Readme the author writes he will make this one better. It is NO copper chunky. But "as is" it is not very good. An older version was wolf2.lha. Maybe another demo i found somewhere (but lost the readme...) is an older or newer version of this demo (it is quite similar). It is called wolf10. But maybe it is only a similar demo from another author.

Author : cpc16@mp-s4.phy.cam.ac.uk

File : /pub/aminet/gfx/misc/wolf3.lha

(wolf10 is /pub/aminet/gfx/misc/wolf.lha)

**System Engine Smoothness Resolution Coded By**

### 1.44 Amiga Texturemapped Games FAQ V 1.05

Wolf3D T. Russell (P) All All

Low NSm Low

Another "first try" demo. I do not know anything about what got with it after this release.

Author : russell@cpsc.ucalgary.ca

File : /pub/aminet/dev/src/Wolf3D-2.lha (with source)

**System Engine Smoothness Resolution Coded By**

### 1.45 Amiga Texturemapped Games FAQ V 1.05

Rot3D J. Freund (PO) FPU+1.5 MB FPU+1.5 MB

Wolf VSmo Med/High

One of the first, if not THE first texturemapping engine on Amiga (now in its latest version). The wood textures of the demo look quite well, as do the stone textures, but there are no floor or ceiling textures and POOM, TextDemo5 and Warp\_S are better. If no one picks this one up, it will die. The authors said they would help a potential "up-picker". It now seems it is dead. (I chatted with someone just reasently who said, he maybe pick up than one...)

Author : freund@cis.uab.edu

File : /pub/aminet/demo/euro/rot3d.lha

**System Engine Smoothness Resolution Coded By**

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## 1.46 Amiga Texturemapped Games FAQ V 1.05

Gloom Black Magic(G) AGA AGA

Low/Wolf VSmo CopL

Gloom is a Texturemapping action game in the way of Castle Wolfenstein.

The resolution of the game is low, even compared to AlienBreed3D and other copper chunky games/demos. But it seems, there was much work about level design already done, and the sound is quite cool. There are no different height walls, only slight floor and ceiling textures and no Automapping. But the game supports one player, split screen and serial link modes. You can modify the game resolution and window size. The dying sequences of the monsters are, quite... hmm... bloody (if you know what they are, with all that big pixels on screen...).

There are two player cooperative and death match modes. The game is a lot of fun in two player mode (but the split of the screen is quite strange, one window is above, the other one below, instead of left and right). The demo consists of one playable level. Gloom is one of the two rumoured texturemapping games of Acid Software (probably the one for the low powered Amigas...) In an interview in "The One Amiga" Mark Sibly said he probably would do MORE 3D graphics on Amiga ... As to a rumour, this one will be out in july.

Author : Mark Sibly/Black Magic

File : On Aminet ...

[System Engine Smoothness Resolution Coded By](#)

## 1.47 Amiga Texturemapped Games FAQ V 1.05

Whales Voy. 2 NEO ECS,AGA,CD32 030 or 040

Wolf Smo Low/Mid

Whales Voyage 2 is a mixture between tradinggame and role playing game.

The dungeon section of the game features a chunky 2 planar texturemapping engine. The guys from NEO said, on a 4000/040 it should be comparable to the PC version of the game.

I simply HOPE, this demo is only some sort of FIRST DEMO, because it did not impress me that much. The textures do not look very nice (I think, Warp\_S and Textdemo use much better textures), there is no real floor and ceiling (but i remember having seen floors and ceiling in screenshots... i really hope, that Whales Voyage 2 won't get a "crippled" Amiga version, in case these Screenshots were from the PC version...

The speed of the engine is a bit slow, but as the Texturemapping itself works fine, i think, maybe only the speed of the code used to walk around is slow, not the engine itself...

I think, using that engine (that probably is not THAT bad...) they could do much better... but probably this only was a first demo...

Author : NEO

File : Maybe on your local BBS ?

[System Engine Smoothness Resolution Coded By](#)

## 1.48 Amiga Texturemapped Games FAQ V 1.05

Games

[TrickOrTreat](#)

[Fears](#)

[Ambermoon](#)

[Za Zelazna Brama](#)

[Legend of Valour](#)

[Liberation](#)

[Jurassic Parc](#)

[Behind the Iron Gate](#)

A last remark for this chapter : The game DeathMask is no real texturemapping. It is a block graphics game which scrolls around while you turn 90 degrees. Better play Hired Guns ...

## 1.49 Amiga Texturemapped Games FAQ V 1.05

TrickOrTreat D. Stuart (P) All All

Wolf Smo Low

Little texturemapping game, where two players try to shoot each other. The graphics is not the best and there is no floor or ceiling texture, but it is the first texture mapping action game on Amiga (yes, it is this one, NOT Fears !!!) Even if the graphics is not comparable to Wolfenstein, the game is a lot of FUN. The author wrote he was looking for some work in coding the Amiga.

Author : ???

File : Amiga User International 11/94 (Coverdisk 45)

Or : Duncan Stuart,10, Bramble Close, The Beeches, Uppingham,  
Rutland, LE15 9PH

[System Engine Smoothness Resolution Coded By](#)

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## 1.50 Amiga Texturemapped Games FAQ V 1.05

Liberation ??? All/AGA (???) AGA+Hard drive or CD32

??? ??? ???

This is a SF RPG that uses texturemapping. If you have a harddisk you are able to get a lot of stuff preculculated (already done on the CD using a CD32). I do not know much of this game at all. It is a commercial game.

Author : ???

File : Several Software Shops...

[System Engine Smoothness Resolution Coded By](#)

## 1.51 Amiga Texturemapped Games FAQ V 1.05

Jurassic Parc ??? AGA AGA

Simply SUXX! ??? ???

Okay, i only saw it once... but the 3D part of this game really SUXX on Amiga. I do not think it is even real texturemapping. Maybe they do every 30 degrees or such things.

Unplayable, if you ask me... Commercial Game.

Author : ???

File : Several Software Shops ...

[System Engine Smoothness Resolution Coded By](#)

## 1.52 Amiga Texturemapped Games FAQ V 1.05

Fears BOMB (G) AGA AGA

Low/Wolf VSmo Low/Med

This is a Wolfenstein clone for Amiga. The walls are better than nothing, the floor textures nearly nothing, the monsters do slide instead of walk, but it is a COMPLETE GAME. It is shareware. There is even sound while playing. And it is really FAST.

Author : Gengis/Bomb

File : /pub/aminet/games/demo/fears.lha

A1200 : Smoothness Smo/NSm

[System Engine Smoothness Resolution Coded By](#)

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## 1.53 Amiga Texturemapped Games FAQ V 1.05

Ambermoon Thalion (SF) All 030

:) VSmo Med

Ambermoon (do i have to explain this ?) is probably the best fantasy RPG on Amiga. Using a cool texturemapping routine. Okay, the monsters of Ultima Underworld on PC are better, but what do you want? This one is LoRes, 32 colors !!! One minute of silence for Thalion... may they rest in peace...

OR be back and do something like that in AGA ??? :))) But sure, that won't happen... and the programmers for Ambermoon are now at Blue Byte, doing Ambermoon's sequel Albion for PC only... BLUE BYTE SUXXXXXXXXXXXXXXXXX!!! Ambermoon is a commercial game.

**System Engine Smoothness Resolution Coded By**

## 1.54 Amiga Texturemapped Games FAQ V 1.05

Za Zelazna Brama ??? All No-Aga

Shading Trick VSmo Low

This game, made by some polnish guys, has (i think) no real texturemapping, but it does some tricks using shading. The graphics does not look very well (at least this is what i heard about it, as i did not see it myself...) I heard, it does not run 100% on AGA machines... As i only heard of this game, i do not know who the coders etc. are, and if it is commercial... but i think Fears does a MUCH better job... these guys should kick off No-Aga and do a ChunkyCopper screen instead of those ugly shading tricks...

The main function could be used by both, i suppose :)

**System Engine Smoothness Resolution Coded By**

## 1.55 Amiga Texturemapped Games FAQ V 1.05

Legend of valour ??? All ???

Wolf(???) ??? Low (???)

Legend of Valour is a texturemapping fantasy RPG on Amiga. It is a commercial game. I do not own it and only saw it once, so i can't say much about this one. But it is not such BIG stuff like Ambermoon.

A1200 : Smoothness NSm (on the biggest screen)

**System Engine Smoothness Resolution Coded By**

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## 1.56 Amiga Texturemapped Games FAQ V 1.05

Behind the ... Bl.Legend(G) All All

Shading Trick ??? ???

Behind the Iron Gate is, strictly, no texturemapping game. It uses some kind of shading ... which looks worse than a texturemapping engine, but is much faster. It is some sort of Wolfenstein-Engine. The monsters are shaded robots, that look quite nice on the screenshots i saw. I do not know, how fast this game is in fact, but as to the article about it in the German "Amiga Magazin" it is intended for 68000 systems and low-end A1200 (And even the screenshots i saw were only very small...) There shall be an AGA version later , with (i am citing the mag article) "additional textures". Hmmm, up to now there were no Textures at all... so is "more" more shading or Texturemapping at all ? :)

As to what i heard now, the creators of this game are UNION INTERACTIVE, Black Legend probably is only the publisher of the game, not the creator...

[System Engine Smoothness Resolution Coded By](#)

## 1.57 Amiga Texturemapped Games FAQ V 1.05

Sources

There are some demos available with sources. Additional you can find the sources of Chunky2Planar routines on Aminet. My comments to these will be rather short, as i am not familiar in coding texturemapping.

If you have comments to some of these sources, mail me ...

The format of the short reviews of the sources of course is different to that of the demo reviews. I will download these sources too and look them through. Maybe then there is something more i could say about them.

\*\*\*\*\*

c2p4.lha /pub/aminet/dev/src 31KB

Very fast c2p converter using cpu+blitter for the conversion. Needs 68020 at least.

\*\*\*\*\*

chnky2plnr.lha /pub/aminet/dev/src 14KB

Various fast c2p conversion algorithms.

\*\*\*\*\*

fastc2p.lha /pub/aminet/dev/src 25KB

Two fast c2p converters.

\*\*\*\*\*

chunky.lha /pub/aminet/dev/src 54KB

Example of how to create a chunky copper display.

\*\*\*\*\*

rot3dsrc.lha /pub/aminet/dev/src 184KB

Complete source of the above reviewed Rot3D texturemapping demo.

\*\*\*\*\*

wolf3d-2.lha /pub/aminet/dev/src 56KB

Above reviewed texturemapping demo including source.

\*\*\*\*\*

tmapdemo.lha /pub/aminet/gfx/aga 131KB

Above reviewed texturemapping demo including source.

\*\*\*\*\*

flick-14.lha /pub/aminet/gfx/show 71KB

FLI/FLC viewer with source including a c2p routine.

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## 1.58 Amiga Texturemapped Games FAQ V 1.05

Rumours and other infos department

1. DSA 2 for Amiga cancelled :(((

2. There are rumours about ACID Software doing a clone.

In a german mag i read, they would do one Clone for low systems, and one clone for High systems. One of the two clones is GLOOM. The full version will be there (as to a rumour) in july...

3. According to Amiga Report 233, AGE Entertainment is working at a scrolling dungeon game. The game should come out as "Paranoia" and the project began quite a time ago. According to the article in the meanwhile the programmers think of the Amiga as a dead platform (the programmers of Paranoia, not AGE Entertainment !!!), and even if they wanted to finish the ECS version of the game, they wouldn't do the AGA version and the CD 32 version that were planned at the beginning. Nor would they do the planned sequels to the game. (But now i heard, Paranoia, if it ever would have been out, would NOT be with Texturemapping, but i do not know for sure...)

4. Some time ago a group looked for coders for porting the game BOOM that they were doing for the Atari Falcon to the PC and Amiga. I do not know, if they found any Amiga programmers for doing the port. The game should be in three parts, and one of the three parts would be a DOOM style action game. I heard, it would be near finished (or finished...) for

PC ... (EMail : rrfriede@cip.informatik.uni-erlangen.de)

5. In the latest add from my software dealer there were announced some games for Amiga AND PC that use texture mapping. These games are Body Count, The castle of Dr. Radiak and the sequel of Elder Scrolls, Daggerfall. I do not know, if this is an error or what (as i never heard anything about it before ... and usually such things do not go unnoticed...) And some of these releases were marked as CD and there was NOTHING written about CD 32 ... this looks strange... but maybe at least ONE is TRUE (if so, i hope it is Daggerfall :))) ).

Later info : Seems, some of them where printing errors... this seems to Elder scrolls and The Castle of Dr. Radiak. (I now got a later add from the software dealer). Body count AGAIN was announced for PC and Amiga.

(But as this one is done by GameTek, maybe it could be true, that they try something with Texturemapping and Amiga... but nothing for sure ...)

In the latest add, Body count wasn't any more announced for Amiga... but Dungeon Keeper from Bullfrog was, and this game also uses texturemapping. But i, myself, think that only can be a rumour too (unless they do a version for graphics board only... then i think it should be possible...)

6. It is said Renegade is doing a Wolf/DOOM clone.

## 1.59 Amiga Texturemapped Games FAQ V 1.05

Doing texturemapping with emulators

1. [Hardware-Emulators](#)
2. [Software-Emulators](#)

## 1.60 Amiga Texturemapped Games FAQ V 1.05

Hardware-Emulators

Hardware-Emulators, that is ... putting INTEL-PROCESSORS in your poor little Amiga. You want to do THIS ? Oh, than you are running PC games, not Amiga ones... therefore i do not write ANYTHING about it in my FAQ. Because this is nearly no emulation anymore... it is ... gaming on PC ... there are quite well emulators of this style called "GoldenGate".

## 1.61 Amiga Texturemapped Games FAQ V 1.05

### Software-Emulators

There are some software PC emulators, but for games like DOOM they are not useful. They are slow and only emulate a 8088 or 80286. DOOM needs a 80386 AT LEAST to run. Maybe on PC Task 3.0 Wolfenstein will run. But the speed (especially the speed of the graphics) surely is a problem. Maybe with a graphics board, but probably even this is too slow. So ... wait for PC Emplant's CPU transcription mode (this one will not be included in the first version of the emulation software, it will come as a free update later ...)

As far as i heard Emplant PC is now capable to run DOOM and Wolf3D using V2.0 of its emulation software (but CPU transcription is not finished, as far as i heard...)

Second ... Mac emulation with software... there are two emulators... AMaxIV and Emplant... as i heard AMaxIV does not run on AGA ... and it uses tricks to be able running with a 128KB ROM ... i doubt games running on this one, but maybe i am wrong...

On Emplant (which i own myself) i tested four texturemapping games for Mac: The demoversions of these games (which i tried...) are on ftp.hawaii.edu in /pub/mac/info-mac/game/com. You will need StuffItExpander to decrunch them.

Wolfenstein : Runs on my A4000/040 with reasonable speed (even if i do not use the graphics board ... with PAL Hires AGA ...), but only with the smallest screen. Not very well coded, as it is not very smooth on the graphics board either... (okay, with 320x256 it is something near smooth ...)

Sensory Overload : Wolfenstein Clone, but i do not like the graphics... okay, the screen is bigger than most of these demos for Amiga... but the graphics is not much better... i think worse... Sensory Overload does not run well without a graphics board.

Pathways into Darkness : Wolfenstein clone from Bungie (Bungie1@aol.com), i think the graphics is better than Wolfenstein, but Wolfenstein has a background music and PID don't ... it is slow, but in LoRes playable without graphics board... not much faster with graphics board, though ...

Marathon : The absolute Mega-Game ... rating, if we do it as with the Amiga demos above : BEY !!! (Yes, this one is MUCH better than DOOM ...) If you are doing EVERYTHING to play DOOM on Amiga, take this one, take the smallest screen size, no music, select that the game only displays every



second line... and run it on at least a 4000/030. But do not show it to your PC friends, they will LAUGH at you, if you do not own a graphics board... (i did, before i got mine :((( ) On a graphics board, Marathon is FANTASTIC, better speed than Amiga graphics demos, maybe even better than DOOM on PC (remember, Marathon is 640x480 ...) I use a resolution of probably 400x300 in Lores, and it is absolute smooth on the SD 64 ... Marathon is the sequel to Pathways into Darkness.  
One Last : It is rumoured, at 15th April, DOOM II will be released for Mac... 68040 and PowerMac, to be exact...

## 1.62 Amiga Texturemapped Games FAQ V 1.05

### Algorithms

In this chapter i will put algorithms or coding hints sent to me.  
Please do not send code (this would be MUCH to specific for this FAQ).

[Terence Russells algorithms used in Wolf3D-2.lha](#)

[Basics of Ray Casting](#)

[Basics of Copper Chunky](#)

## 1.63 Amiga Texturemapped Games FAQ V 1.05

Terence Russells algorithms used in Wolf3D-2.lha

Basic structures and algorithms used to create the Amiga Wolf3D demo.  
The techniques I have used do not involve ray-casting for the rendering or BSP trees for hidden object removal. Instead my style of rendering has more in common with flat-shaded polygon rendering used in many older demos.

Sorry for the crappy organization. I'm a fourth year computer science student and I haven't much time to do this properly.

The Maze and basic objects:

The maze is essentially two dimensional and if looked at from above it would appear to be a grid whose squares are outlined with walls or are bisected with doors.

Each square from above is 64 x 64 pixels in dimension. I use pixels as a unit of measurement since in fact each point is represented by a pixel column in a bitmap.

The use of the grid analogy is purely conceptual, however, since using a grid structure would create some complications (which are described under

'collision detection' and 'door movement'). For purposes of discussion I will refer to the X and Y axis' as being the east-west and north-south axis' (respectively) of the grid from an above view. The Z axis will refer to the axis that comes up out of the grid. (This runs contrary to how I actually programmed the demo as the Y and Z axis are swapped). Walls and doors are represented by the same basic unit: the block. A 'block' is from a structural standpoint the canvas onto which wall and door imagery is 'painted' or 'mapped'. Every wall and every door in the maze is associated with a block. In fact a block may consist of up to 4 walls that represent the 'north', 'west', 'south', and 'east' faces of the block.

>From a programming view a block consists of 256 points plus a center point. The center point positions the block relative to the bottom-left corner (0,0,0) of the maze. The remaining 256 are divided into 4 groups of 64 points, each of which are associated with a particular block face. All 256 points are relative to the block's center point. (Hence, only one set of these points need be maintained for all blocks within a maze). As can be imagined the end-points for each face overlap.

The walls points are given the following offset ranges:

SOUTH: (-32,-32,0) to (31,-32,0)

NORTH: (31,31,0) to (-32,31,0)

EAST: (31,-32,0) to (31,31,0)

WEST: (-32,31,0) to (-32,-32,0)

Notice that for each face the ranges are given in an order which implies counter-clockwise as viewed from above the grid. This is important for properly rendering the wall graphics and for backface culling, that is, removing walls that are facing away from the observer/player.

Each wall/door has an associated 64 x 64 pixel bitmap. Each 1 pixel wide column of the bitmap is represented by one of the points found along the wall/block face. Hence point 0 of the south wall of a block may represent the 0th column of a 'stone wall' bitmap. From the programmer's view I use the wall point's ordinal value (it's relative position) to offset/toc into the bitmap image.

Previously I mentioned that blocks are used for BOTH walls and doors.

The attentive reader may have noticed that the offsets for the walls would create doors that are not located in the center of a block. Since my aim was to create a near Id wolf-clone I had to specify extra offsets just for the doors. These new offsets simply have either the X or Y component zeroed depending on which direction the door is to lie along.

This allows the doors to appear in the center of a block. This also makes it easy to have sliding doors since all I really need to do is move the associated block's center point in the direction the door opens. The door then slides 'into' an adjacent wall block which takes care of hiding the door. (This is explained later in the next section).

RENDERING - this is just a quick and dirty algorithm

Translate the block centers by an amount equal to the players relative maze position. Now rotate these centers using the players attitude or angle of direction, also relative to the 0,0,0 point of the maze.

Next rotate the 256 wall points using the same players direction angle.

For each block center, translate a copy of the 256 wall points to the block center such that the block center is in the middle of the points.

Now that we have a list of block points that are relative to the player's position we want to render the blocks. To determine what blocks are visible I simply sort them by there Y value, (which is now relative to the player's position). I used this method since at the time I did not know of the BSP tree method for determining visible polygons.

Once we have a list of sorted blocks, we can immediately discard the blocks that fall behind the viewer. From this point we render each block until the player's view is completely filled with graphics.

Since I don't want to draw all of the blocks that are in front of the user, (just the ones that fill up the view), I use a pre-render loop which determines what portions of walls/doors are visible.

To determine what is visible I use the sorted list of blocks and an array called the xBuffer. This buffer is one dimensional and has an entry for every vertical column of the user's game display.

The algorithm involves a lot of simple parts that when put together create a fairly complex program. Hence I will attempt explain it using two similar explanations.

EXPLANATION 1:

I use the following algorithm:

clear the xBuffer

while xBuffer is not full do

get the block closest to the player

for each face of the current block do

if current face is invisible then

skip face

else "current face is visible"

for each of the current face's 64 points do

perform a perspective calculation on the point to  
get a screen X1,Y1 point.  
duplicate X1 into X2  
mirror Y1 across the center of the display to get Y2  
the line (X1,Y1)-(X2,Y2) forms a column of screen points  
onto which a column slice of the wall/door bitmap will  
be mapped/scaled.  
if X1 lies with in the range of the xBuffer  
(usually 0-319 for a full screen) then  
check xBuffer[X1].height to see if a column  
hasn't already been written there.  
IF height of current line > xBuffer[X1].height THEN  
xBuffer[X1] = current column and it's associated  
bitmap imagery.  
else  
discard this column as being invisible.  
endif  
"If all I did was insert just the columns into the  
xBuffer there would be gaps in-between the columns  
do to the perspective transformation, hence  
I need a little loop that makes a copy of the  
current column back to the previous column of the  
same wall."  
end-if  
end-for  
end-while

For example suppose my maze viewing area is 320 pixels across the screen.  
Then the xBuffer has 320 elements. Each element is a structure that  
records: the half-height of the wall/door from the horizon or the equator  
of the viewing area; the bitmap identifier; the pixel column offset into  
the bitmap

Now using the xBuffer I have a routine take each element and read a column  
of pixels from a bitmap and then stretch and clip the bitmap into the  
hidden rendering buffer.

EXPLANATION 2:

while not done do  
check closest wall/door's extents  
(i.e. the starting and ending X locations as project on the view)  
if the extents are outside the viewing area then

```
discard the wall/door
else
for each of the 64 points/columns of the wall/door
determine where the column is relative to the view area
if the column lies in the view area then
check the corresponding xBuffer element to see if
something hasn't already been written there
if empty then
write the columns height and bitmap column offset
and bitmap identifier to the xBuffer.
else
if current column's height is greater then
write it
else
this part of the wall lies behind some other wall
end
end
end
end
end
end
end
```

Starting with the closest block I check each face to determine if it is visible. Since the faces of the blocks are at angles of 90 and 180 degrees from each other, at most 2 faces will be visible at any one time.

Once I determine a visible face I use the associated 64 points for that face to determine visible columns. To each point I add to the Z component an amount equal to have the height of a wall. Then I run the point through a simple perspective calculation and I now have a somewhat correct position for projecting the point onto the player's view.

I next create a duplicate of the point and mirror it across the middle of the player's view. This gives me two points that represent a line or column of the wall's bitmap. Since each point of a face is uniquely associated with a column of pixels in a wall bitmap I can perform some sort of 'texture' mapping now. Only one thing remains, and that is to determine the next columns position. Since as you get closer to a wall the 64 points will be spread out over a greater viewing area, gaps will start to appear between the columns. These gaps are eliminated by copying a column up to the next column.

Collision Detection:

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Some authors have suggested using a static grid to perform collision detection with walls. Generally this works very nicely, however, in the case of Id's Wolf3D there is a slight problem. Id's game supports moving walls (in other words the secret passage-ways). To perform collision detection on these moving walls while using the static grid meant that I would need to either create special case for checking when a wall was moving, or would have to create a special kind of block: i.e. a moving wall block. At the time I decided this was unsatisfactory so instead of using a grid I decided to use the block's center point and a bounding box around the player. Using this method, collision detection involves checking each block center to see if it lies within the players bounding box. This allows me to move blocks at will without worrying about special cases and is generally pretty quick.

There are many more points to the algorithms I have used, and if you are interested in understanding them and want to learn a maze rendering technique that does not involves ray-casting then send some email.

Terence Russell

russell@cpsc.ucalgary.ca

## 1.64 Amiga Texturemapped Games FAQ V 1.05

### Basics of RayCasting

[REFERENCES: Tricks of the Game Programming Gurus by LaMothe, Ratcliff, Seminatore, and Tyler. It's blatantly geared towards PeeCee programming ("The Mysteries of the VGA Card", etc) but there's plenty of generic code that applies to all computers.]

RayCasting (RC) is a fast and elegant way to create a psuedo 3D world. If you've ever played Wolfenstein 3D, you've seen it in action. To achieve the high speed of RC, some concessions are made: walls and doors are all the same height/width, there are no curved or diagonal walls, there is no floor or ceiling. Yet, even with these drawbacks, RC is a powerful tool. The world of an RC game, if viewed from a bird's perspective, would be a very structured 2D grid. Through the use of basic trigonometry, the 2D world is reconstructed, at run time, as a 3D illusion. For instance:

```
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|||||
-----
||W|W|W|W|W|W|W|W|W = wall
-----\-----/----- D = door
```

```

||W||\||/|W|||P = player
-----\---/-----
||W||\||/|D|||
-----\---/-----
||W|||P||W|W|W||
-----
|||||||W|||
-----

```

Imagine this is part our game world as seen from above and 'P' is the player. He is facing 'North' (90 degrees) and looking at a wall. The two angled lines represent his Field of Vision (FOV) - in the real world, this is about 90 degrees, but for the game-world 60 degrees works fine. Also, assume the whole game-world is 64x64 cells, with each cell being 64x64 'virtual units' - making the entire game world 4096x4096 units.

To create the 3D illusion, we must cast some rays. What this entails is casting out a series of 'rays' or 2-D vectors - each originating at the players position (xp, yp) until they hit something - a wall, door, etc.

How many rays? The number of rays equals the number of vertical columns on the video display - assume we are using a 320x200 display, so we must cast out 320 rays. The rays must encompass the player's FOV - from player view angle (p\_ang) minus 30 degrees to p\_ang + 30 degrees - which yields a FOV of 60 degrees. So let's cast the first ray at p\_ang - 30.

Now comes the trig. You may remember the 'point-slope' equation of a line:

$$y_2 - y_1$$

$$M = \frac{y_2 - y_1}{x_2 - x_1}$$

$$x_2 - x_1$$

where M=slope of line and (x1,y1) and (x2,y2) are two points on that line.

We know M - the slope will be tangent(ray\_ang) - where ray\_ang is the angle of the ray (60 degrees for our first ray). We also know x1 and y1 - they are xp and yp (the player's position). The only things left are x2 and y2 (let's call them xi and yi - for "intercept").

We need to cast each ray twice: one cast checks for horizontal intercepts and the other one checks for vertical intercepts. For example - our first ray gets cast at 60 degrees. If you look at the map you see it first intersects with a horizontal line then a vertical line, etc. Things become greatly simplified if we only check for either the vertical intercepts or the horizontal: look at the first intersection - the x-coord is unknown but the y-coord is easily determined: (yp / 64) \* 64 (since each cell is 64 units). Now, look past the next intercept (which

is a vertical one) and look at the next intercept. Again, the x-coord is unknown but the y-coord is the last y-coord minus 64. The same holds true if you look at the vertical intercepts - the x-coord is divisible by 64 but the y-coord is unknown. This is why we cast each ray twice.

Okay. Let's cast the first ray - looking for horizontal intercepts. We can get the y-coord ( $y_i$  in our point-slope equation):  $(y_p / 64) * 64$ .

The only unknown left is  $x_i$ . Using the point-slope, we solve for  $x_i$ :

$$x_i = [(1 / \tan(\text{ray\_ang})) * (y_i - y_p)] + x_p$$

$$y_i = [\tan(\text{ray\_ang}) * (x_i - x_p)] + y_p \leftarrow \text{For vertical ray}$$

This yields the coords of the first intercept. Now we need to check the cell above this coord to see if there's a wall. If there is we stop casting - if not, we need to continue. In our map that cell is empty, so we continue casting. The next y-coord is easy:  $y_i - 64$ . However, the x-coord is again a problem. Fortunately, trig comes to the rescue:

$$x_i = x_i + [(1 / \tan(\text{ray\_ang})) * 64]$$

$$y_i = y_i + [\tan(\text{ray\_ang}) * 64] \leftarrow \text{For vertical ray}$$

So, we continue casting until we find a cell with something in it. Then, do the same thing for the vertical ray.

Now, we've cast the ray twice. Next, we need to determine the relative distances of each intercept to the player, and we'll use the closest one:

$$y\_distance = (x_i - x_p) / \cos(\text{ray\_ang})$$

$$x\_distance = (y_i - y_p) / \sin(\text{ray\_ang})$$

You may have been expecting to use the Pythagorean thm. here, but this method is much simpler. Remember your trig!

/|

/|

$$r / | \sin(a) = y/r \iff r = y/\sin(a)$$

$$/| y \cos(a) = x/r \iff r = x/\cos(a)$$

/|

/a|

-----

x

Okay. Now that we have the distances, we choose the shorter of the two since the one further away will be blocked out by the closer one. Now, we need to calculate the scale - this will be the 'height' of the wall sliver. Remember, we not trying to build a whole wall here, just the part that will be represented on the particular video column. Imagine cutting a thin slit in a piece of cardboard and looking through that.



Then, pan it right to left real fast, over and over. That's pretty much how we're building our world.

Scale is very hard to calculate:  $scale = 1 / dist$ . Whew, that was difficult! Actually, there's more to it. To make our world seem 'real' we also need to multiply by some mysterious constant - K. Also, since we've been mixing rectangular and polar coordinates in our calculations we are going to end up with a sine wave modulated on top of everything.

This is easily fixed by multiplying by the inverse cosine. Thus:

$$scale = K * (1 / \cos(ray\_num)) * (1 / dist)$$

Note that we did not use ray\_ang here, but rather we used ray\_num (ray\_num will range from 319 to 0). This is because the sine wave modulation is going to adversely affect the video display.

The last thing we need is which column of the wall have we hit? This will be used by the texture mapping algorithm - i.e. which column of pixels of the texture gets mapped onto the wall? The answer:

$$column = yi \% 64$$

That's it! Now, we need to repeat this for all rays, and we're done!

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## 1.65 Amiga Texturemapped Games FAQ V 1.05

Basics of Copper Chunky

Explanation of copper-chunky mode.

A "copper-chunky" mode is nothing else than a i.e. 7-bpl pattern in the bitplanes + a real big copperlist. First you have to generate the pattern in the bitplanes, which goes like this:

Color0,Color1,Color2,Color3,Color4,Color5...

Ofcourse you cannot display all 256 colors per line, just because the copper is too slow for doing this, so we are restricted to something about 128 colors per line to get a good look. A good way to display a full-screen view would be to use a 2.5x2.5 resolution, which exactly means something like that:

Color0,Color0,Color1,Color1,Color1,Color2,Color2,Color3,Color3,Color3..

You just perform alternating pixel widths of 2 and 3 and this way you get to 128 colors throughout the full line (320 pixels width)

What you do to actually SET the colors you want on the screen is to generate a big copperlist, with instructions like that:

[...]

---

```
dc.w $10C,$8000 ;display upper 128 colors
dc.w $106,$0020 ;change lower 128 colors
dc.w $180,Pix0,$182,Pix1,$184,Pix2,$186,Pix3...
dc.w $106,$2020
dc.w $180,Pix32,$182,Pix33,$184,Pix34,$186,Pix35...
[...]
dc.w $xx01,$FFFE ;wait for next (2.5) row
dc.w $10C,$0000 ;display lower 128 colors
dc.w $106,$8020 ;change upper 128 colors
dc.w $180,Pix0,$182,Pix1,$184,Pix2,$186,Pix3...
dc.w $106,$A020
dc.w $180,Pix32,$182,Pix33,$184,Pix34,$186,Pix35...
[...]
```

Where Pixn is the color for the (2.5) pixel at position n.

This way you can set 128 pixels in one (2.5) row. This can be seen as a 12-Bit RGB-Chunky-Pixel-Mode, as you can set all colors available under ECS freely on the screen.

To prevent the pixels on the next row from looking strange because of changing the copperlist AFTER the pixel has been displayed by the video hardware, we have to use a trick (sometimes called "Copper-Doublebuffering").

Now something about the \$DFF10C register:

BPLTCON4 - Bit Plane Control Register (display masks)

```
+-----+-----+-----+
| BIT# | BPLCON4 | DESCRIPTION |
+-----+-----+-----+
| 15 | BPLAM7=3D0 | This 8 bit field is XOR`ed with the 8 bit plane |
| | color address, thereby altering the color address |
| | sent to the color table (x=3D1-8) |
| 14 | BPLAM6=3D0 | |
| 13 | BPLAM5=3D0 | |
| 12 | BPLAM4=3D0 | |
| 11 | BPLAM3=3D0 | |
| 10 | BPLAM2=3D0 | |
| 09 | BPLAM1=3D0 | |
| 08 | BPLAM0=3D0 | |
| 07 | ESPRM7=3D0 | 4 Bit field provides the 4 high order colortable- |
| | address bits for even sprites: SPR0,SPR2,SPR4,SPR6.|
| | Default value is 0001 binary. (x=3D7-4) |
```

06	ESPRM6=3D0	
05	ESPRM5=3D0	
04	ESPRM4=3D1	
03	OSPRM7=3D0	4 Bit field provides the 4 high order colortable
	address bits for odd sprites: SPR1,SPR3,SPR5,SPR7.	
	Default value is 0001 binary. (x=3D7-4)	
02	OSPRM6=3D0	
01	OSPRM5=3D0	
00	OSPRM4=3D1	

+-----+-----+-----+-----+-----+

If you change bits 08-15, you can define an "offset" to the color table in the copperlist. So you change \$10C to \$8000 and then you change to the upper 128 colors in the copper-palette. The trick is to display the previous changed colors while changing the other colors.

## 1.66 conference

The Amiga Texturemapping online conference

1. [The invitation](#)
2. [Some hints for people who do not use IRC often](#)

## 1.67 Amiga Texturemapped Games FAQ V 1.05

The invitation

The next texturemapping conference will probably be at 31st July, 17:00 GMT. Coders, who are interested in coming, please send me mail (so i know, if there is interest for a fourth conference...)

## 1.68 Amiga Texturemapped Games FAQ V 1.05

Some hints for people who do not use IRC often

IRC is the online chat system of the internet. Try out the command irc on your site. If this does not work, contact your system administrator and try to convince him to install an irc server :))).

As you entered irc, you specify your nick name (the name under which you will be known), with /nick Nick-Name. An alternative is starting irc with irc Nick-Name. To enter a channel (a channel is a place for people discussing a specific theme to meet), you type /join channelname.

Each channelname starts with a #.

To send someone a private message (that other can't read) you type /msg Nick-Name "...", where Nick-Name is the Nick-Name of the user, to whom you will send the message. To send a message to all users in this channel, simply type what you want to say. Usually you should write it in the following way : Name of the user for whom this message is primarily : Text.

/who \* lists all users currently on this channel.

/list \* counts the users on this channel.

/time returns the difference between your timezone and GMT.

For me for example it says +1, so if it is 17:00 GMT, it is 18:00 for me...

With /quit you quit irc.

That are only the basics for irc, but with that knowledge you can be with us at the conference :))). Irc also has a help-system installed, by the way.

## 1.69 Amiga Texturemapped Games FAQ V 1.05

What can YOU do to support this FAQ ?

1. Support Amiga
2. Write texturemapping demos/games on Amiga :)))
3. Buy Amiga texturemapping games, if they come to a release
4. If you know of any texturemapping game/demo not mentioned in this FAQ

(dungeon-related, no texturemapped cubes and spheres),

or if you have information relevant for me, mail to

- haeuser@minnie.informatik.uni-stuttgart.de

OR

- call Germany 07021/861920 or 862428 or 862429 (Birdland BBS,

i am Magic SN on this BBS ...)

OR

- Phone Germany 07021/51787 and ask for Steffen

OR

- go in irc and look for MagicSN (that's me :))) )

OR

- write a letter to Steffen P. Haeuser, Limburgstr.127,

73265 Dettingen/Teck,Germany

OR

- Do whatever you want ... :)

5. Do the same, if you want to send me critics or beta-releases of demos

to test them :))))))))))))) (at least i tried it... maybe someone would be in FACT that nice :))) )

My internet-account is able to handle BIG UUEncoded mail... :)))))))))

6. Spread this FAQ on all nets and BBS's.

7. If you are a coder, and you have a lack of time to code, or you have a serious problem in coding texture mapping, maybe you find some interesting EMail-Adresses all over this FAQ ...

8. Send me texturemapping algorithms you see no need anymore in keeping them private (for this new chapter V)

That's it... as soon, as i hear news about some of the mentioned demos (or of some new ones ...) i will do a later version of this FAQ. It will be found in comp.sys.amiga.games at least... maybe soon there will be a later version of Warp\_S or POOM or TextDemo or DentAWolf or... or ...

ciao,

Steffen Haeuser

OR MagicSN (in irc)

OR haeuser@tick.informatik.uni-stuttgart.de (E-Mail, talk ...)

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