

SEGA
MAGAZINE
BRITAIN'S ONLY OFFICIAL SEGA MAGAZINE

MEGADRIVE 32X



● THE 32-BIT REVOLUTION BEGINS WITH THE RELEASE OF SEGA'S MEGADRIVE 32X UPGRADE. WITH BLISTERING 32-BIT SPEED AND UNRIVALLED TWIN RISC CHIP POWER, THE MEGADRIVE 32X REDEFINES HOME VIDEOGAMING.

WELCOM THE NEX

The Megadrive 32X is finally here. A true 32-bit powerhouse, the 32X offers existing Sega 16-bit owners the chance to upgrade their machines for only £169.99 - significantly cheaper than the latest so-called "next generation" consoles.

Along with a keen price point and blistering performance, the 32X also offers something that other new consoles can't match: a decent range of games. Sega have converted some of their best coin-ops to the 32X along with some of the most exciting 32-bit games available for other, far more expensive systems. Thus we see Doom being released simultaneously with arcade conversions like Virtua Racing Deluxe and Star Wars Arcade.

This special supplement, put together in association with Sega, explores the first three releases along with the capabilities of the powerful upgrade, then offers a preview of some of the 32X titles scheduled for release early in 1995.

RICHARD LEADBETTER

● TECHNICAL SPECIFICATIONS

There's no doubt that the Megadrive 32X's technical capabilities are pretty awesome, but what does all this 23MHz and 40 MIPS stuff actually mean - how does it all affect the games you're going to play? Read on...

● CPUs

Megadrive 32X is, technically speaking, a 32-bit system, although the upgrade actually contains two Sega/Hitachi SH2 32-bit processors. Each of these processors runs at a pretty swift 23MHz. Both of the chips are capable of pumping out 40 MIPS (Million Instruction Per Section). Since both of these processors operate in parallel, this £170 upgrade compares favourably with a top-spec PC, which costs hundreds of pounds more. How's that for value.

● CO-PROCESSING

If you're still in doubt about the power of the Megadrive 32X, bear in mind that the system can be used in tandem with the 16-bit system it plugs into. Therefore, the Megadrive's main 68000 processor can be utilised for co-processor duties. Helping out with the co-processing chores is a new chip inside the Megadrive 32X, known as the VDP (Video Digital Processor). This custom microprocessor aids the upgrade in adding to the Megadrive's graphical capabilities.

● GRAPHICAL CAPABILITIES

Obviously, bringing better graphics to home games is a lot of what Megadrive 32X is all about. By using the system's dual RISC processors along with the VDP, Sega are sure that the Megadrive 32X can render 50,000 polygons a second. Clever coding could probably increase that number. This is because the 32X doesn't actually have dedicated polygon processors - everything is worked out with the mathematical might of the 32X.

In addition to that, the system can easily cope with sprite scaling and rotation as well as texture mapping. All of these capabilities are utilised in the first set of titles for the machine. Megadrive 32X uses dual-frame buffering. So what does that mean eh? Well, basically, while the system is displaying one frame, the upgrade is building up another frame in memory. The frames are then switched. Basically, this makes for much smoother on-screen action. Programmers on the ancient Commodore 64 used the same trick in conjunction with the machine's custom graphics chip for super-smooth scrolling (interesting eh?).

● COLOURS

Sega are promising higher definition screens (roughly comparable with Super VGA on the PC) and loads more colour with the

aid of the Megadrive 32X's VDP chip. The system now has access to 32,768 colours, being capable of displaying a bare minimum of 256 on-screen at one time.

● MEMORY

The system has 512K on-board memory, which translates into four megabits. This gives programmers a lot more freedom - far more variables can now be stored in memory for more complex games.

This is in addition to the built-in memory the Megadrive and Mega-CD possess. This is quite significant, especially when the 32X is used in conjunction with the Mega-CD, which has six megs of memory built in.

● VIDEO

Along with all the polygon power, texture mapping, sprite scaling and rotation, Megadrive 32X also has the ability to make use of the basic 16-bit graphics as well, should the need arise. In fact, the upgrade can overlay its new VDP display over any graphics it would care to display using the conventional 16-bit Megadrive hardware.

● AUDIO

The old Megadrive's sound chip has come in for a bit of stick over the last year, so Megadrive 32X's designers kitted out the upgrade with an all-new sound chip. This custom chip provides full stereo digital audio, with programmable sample rates.

Coders can opt for CD quality samples (which do consume a lot of memory) or use a lower frequency, which isn't quite so memory intensive.

Of course, in the right hands, the basic Megadrive sound chip is capable of some excellent noises (check out the Shinobi or Streets of Rage series of games). Megadrive 32X has audio mixing, enabling the new sound chip to be used simultaneously with the old one, providing what could be the ultimate sound-related experience.

● DIMENSIONS

In case you can't get an idea of how big the upgrade is from our numerous pictures, the actual dimensions of the unit are 13" x 5" x 9".

● WHAT DO YOU GET FOR £170?

Even though it's by far the cheapest "next generation" console around, the Megadrive 32X is still a pretty hefty investment, weighing in at £169.99. So what do you get for your money?

Obviously, you get the 32-bit upgrade itself, along with its own AC power adaptor. A couple of AV cables are bundled with the machine which connect it to your TV, as well as a cable which connects the Megadrive's own audio-visual signals to the 32X. An adaptor, for use with Megadrive II owners makes the 32X a cosy fit on every type of Megadrive so far released (apart from

*"This £170
upgrade
compares
favourably
with a top-spec
PC..."*



E TO R LEVEL

THE SPEC
MEGA DRIVE
32X



the
Mega PC,
which it isn't compatible
with).

Perhaps the best news of all is the fact that the 32X
is bundled with a book of vouchers, which enables 32X owners
to get a tenner off their first five 32-bit cartridges (or CDs).

● 32-BIT BUZZ WORDS

The next generation of 32-bit consoles are such a quantum leap
in gaming technology that a whole new range of bizarre techno-
jargon has emerged. Here, we explain away all the new buzz
words and show examples of the techniques - as employed in
the first batch of Megadrive 32X titles.

● POLYGONS

Inside the 32X are two dedicated processors that
are dead good and fast at executing
mathematical instructions. This enables the 32X
to generate some superb looking, highly realistic
3D environments. Because the environment is
mathematically generated, it's possible to view it
from just about any angle. This is down to
polygons. A polygon is basically a flat shape, and
the 32X creates its 3D shapes by making them
out of many different polygons.
Showing off the polygon prowess of the 32X are
two of the first three titles: Star Wars Arcade and
Virtua Racing Deluxe.

● LIGHT SOURCING

Light sourcing is a technique that increases the
realism in polygon virtual worlds still further. The
in-game "world" is given an artificial light source. The polygons
are then shaded so that polygons that aren't exposed to the
light source are darker, whilst those basking in the artificial illumi-
nation are significantly lighter. Although the technique hasn't
been fully exploited in 32X titles to date, there is some subtle
light sourcing going on in Virtua Racing Deluxe and Doom.

● TEXTURE MAPPING

Texture mapping has become one of the most oft-used buzz

words of 1994, owing to the success of
such coin-ops as Daytona USA and Desert
Tank. It's a very powerful technique that can
be used on the Megadrive 32X - and indeed
crops up on one of the very first releases:
Doom.

Polygons are used to create the basic virtual world.

These basic outlines can be generated very quickly, but
don't look that convincing. To make things look a lot more realis-
tic, the 32X can warp and distort sprite-like images into 3D and
then superimpose them to create stunning 3D landscapes.
Doom is the first 32X title that really shows off the 32X's texture
mapping abilities, but further titles are planned. Take a look at
the impressive Metal Head if you don't believe us...

● SPRITE SCALING

Sprite scaling has actually been around for years
now (in the arcades at least), but decent,
dedicated sprite-scaling has never been available
for the cartridge-based Sega systems. It did crop
up on the Mega-CD, and was used to great effect
in games like Batman Returns, Battlecorps and the
forthcoming Samurai Shodown. However, it never
really caught on in a big way.

There's no chance of that happening with the
Megadrive 32X. Sprite scaling basically involves
taking a sprite image (say, one of the characters in
Street Fighter II) and then expanding or compress-
ing the image to make it look bigger or smaller.
The technique has been around for ages in the
arcades and was showcased by Sega in such coin-
ops as Space Harrier, Afterburner, Super Monaco
GP - and of course, the greatest sprite-scaling
coin-op ever, Outrun.

Now, sprite scaling arrives in force on the 32X, with plenty of
titles featuring the impressive technique including the forthcom-
ing Super Motocross and the Cosmic Carnage combat game.

*"Doom is the
first title that
really shows
off the 32X's
texture map-
ping abilities."*

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MEGA DRIVE
32X
3



SKILL LEVEL:
 I'M TOO YOUNG TO DIE.
 HEY, NOT TOO ROUGH.
 HURT ME PLENTY.
 ULTRA-VIOLENCE.
 NIGHTMARE!



DOOM



32-MEG
SHOOT 'EM UP
OUT NOW

When it was released on the PC format in the latter months of last year, Doom was a revelation.

The game successfully managed to create an incredible 3D virtual world that simply oozed realism. Using polygons just to create the basic shape of the world, Doom was the first home game that successfully used texture mapping - layering sprite-like images over the polygons - in order to create an ultra-realistic environment.

The game went on to win just about every award going, with most gamers realising that it was the most ground-breaking videogame money could buy... However, those gamers needed a lot of money. To run Doom at a decent speed, a high-end PC costing around £900 was required.

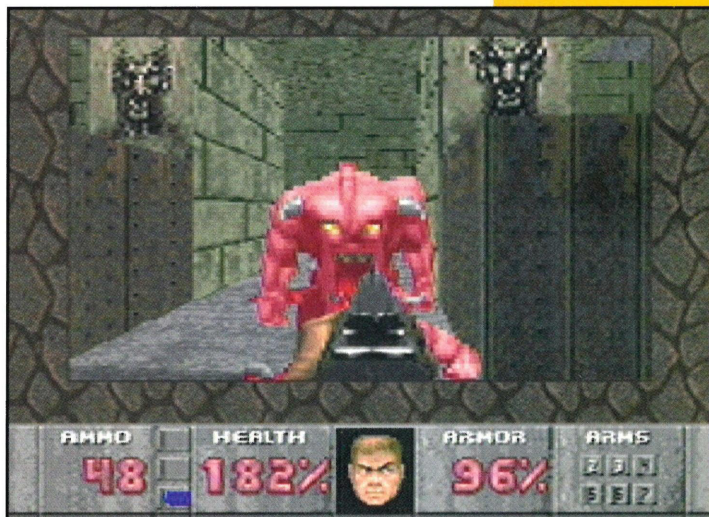
Thankfully, that is no longer required, because Doom is coming to the super low-cost Megadrive 32X - and what's more, it's exceptional. Every feature from the PC version has been incorporated into the new Sega version, although there are some levels missing.

Apart from that, everything's here. All of the weaponry has survived intact and the gameplay remains just as playable as it ever was on the PC. Unlike some other console companies, Sega have allowed the 32X version of Doom to include all the flying blood and guts from the original game. Although this does indeed add to the fun, it should be stressed that Doom is not for kids.

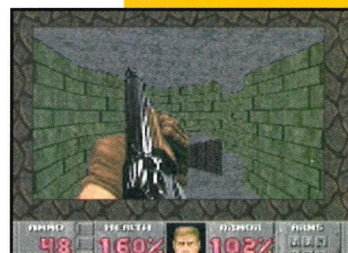
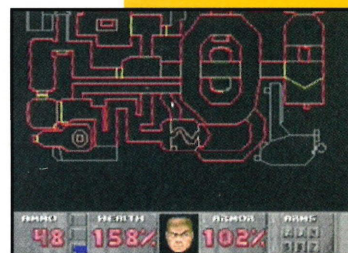
Otherwise, Doom is an essential purchase - it's one of the most enjoyable, playable games ever devised for a home system - and now you don't need a £900 PC to play it, just the £170 Megadrive 32X.



▲ These huge, pink balls of fireball-spewing hate are known as Cacodemons. Two rockets or eight well-targeted shotgun shells are required to dispose of these fiends.



▲ The demons in Doom have a tough skin, but have no weapons to fire off in your direction. Ideal chainsaw fodder.



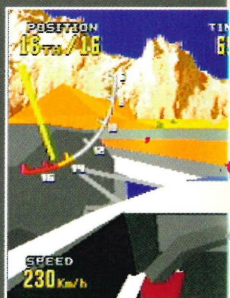
▲ All of the impressive weapons from the PC version are in the 32X game...

▲ On later difficulty levels, the game throws hundreds of enemies at you.





▲ The incredibly impressive box artwork for VR Deluxe.



VIRTUA RACING DELUXE

24-MEG
RACING GAME
OUT NOW

Until the release of Sega's Daytona USA coin-op earlier this year, Virtua Racing was consistently ranked as the most playable, exciting road racer ever devised.

Everyone loved it, from the average arcade gamer right through to the likes of Damon Hill - who used to play the game with his Formula One driver rivals (and emerged champion, by the way).

The game was successfully converted onto the Megadrive earlier this year, capturing the excitement of the game perfectly. Advanced Sega Research and Development resulted in the production of the Sega Virtua Processor - a chip that enabled the Megadrive to display up to 9,000 polygons a second.

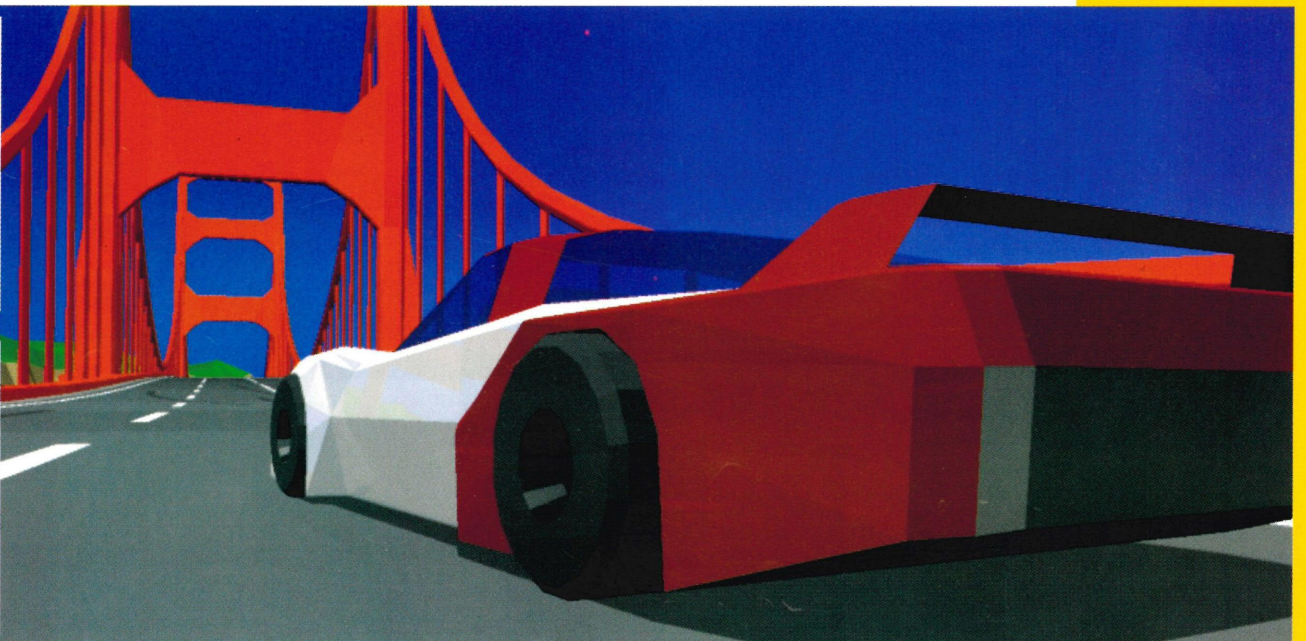
This pseudo-follow-up greatly benefits from the 32X's higher specification. Programmers AM2 have developed a conversion that doubles the amount of polygons and significantly speeds up the game's frame rate, resulting in a far smoother driving experience. One thing that hasn't changed is the fact that Virtua Racing Deluxe has a two-player option with a special split-screen mode.

But that's not all. Virtua Racing Deluxe is far bigger in terms of content than the original coin-op. Instead of the basic three arcade tracks, there are now five in all. Players can race on their favourite coin-op courses, but can also race along a terrifying urban cityscape (in the Highlands level) and burn along the desert-like Sand Park.

The 32X version also betters the coin-op in providing three different types of racing car to choose from. There's the Formula One cars from the original game of course, but now players can race with the slower but far more responsive stock cars, or aim to beat their track records with the super-speedy prototype machines.

The overall impression is of a very fast, fluid and highly enjoyable road racing game. There are plenty of other racing games in the pipeline for the Megadrive 32X - but they're going to have to be really good to beat this in terms of sheer entertainment value.

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VIRTUA RACING DELUXE
MEGADRIVE 32X

MEGADRIVE 32X
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STAR WARS ARCADE

24-MEG
SHOOT 'EM UP
OUT NOW

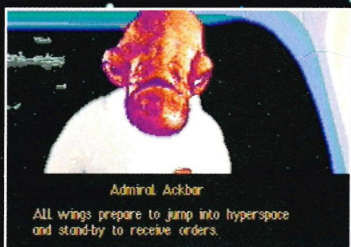
When Sega announced plans for the Megadrive 32X in March this year, the aim was "to bring the arcade experience home".

One of the first titles to fulfil that promise (and believe us when we say that there are plenty more in the pipeline) is a 32X conversion of Star Wars - the new Model One CG board coin-op from Sega. There has been much speculation in the specialist press as to whether the 32X has the power to match the latest coin-ops. The only answer you could possibly respond with after viewing Star Wars Arcade is a resounding "Yes!". Everything from the original arcade machine is in this stunning conversion... and plenty more besides. From the polygon rendition of the movie's opening sequence (complete with 3D writing scrolling into the background AND an incredible, fully sampled rendition of the John Williams score!), Star Wars Arcade is virtually identical to its coin-op parent. The actual game is a 3D blaster casting you as a rebel pilot cutting swathes through the Imperial TIE Fighter fleets in different scenarios, before taking on the evil might of the Death Star itself! Will you reach the exhaust port and fire off the proton torpedoes necessary to destroy Vader's mighty moon-size planet-busting fortress? Many arcade gamers complained that the coin-op version of the game was way too easy. The coders of the 32X version have taken that criticism on-board and have actually included two distinct versions of the game on the same cartridge. Arcade purists can play a nigh-on identical version of the original game whilst those after a more daunting challenge can take on a specially prepared 32X game variation which features more levels and a higher level of difficulty. And if that's not good enough, the programmers have even upped the difficulty level on the arcade game variation as well!

Just like the original coin-op, the 32X version includes a simultaneous two-player mode. One player controls the X-Wing fighter as normal, whilst the second player takes on the role of gunner. Hard core Star Wars fans might argue that the X-Wing is only a single seater ship with one set of lasers. The coders have even taken this into account for their enhanced 32X version of the game! Here, the players are given a Y-Wing to command, which is a two-man ship. Although the gameplay is simplistic, there's no doubting the sheer slickness and enjoyment factor of the 32X conversion - and that fact, along with the tough challenge and spectacular audio-visuals will keep gamers coming back for a long time.

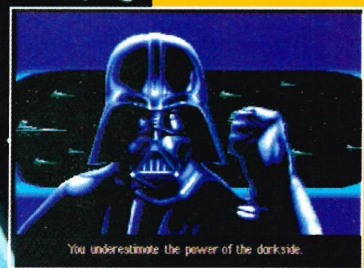
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STAR WARS ARCADE

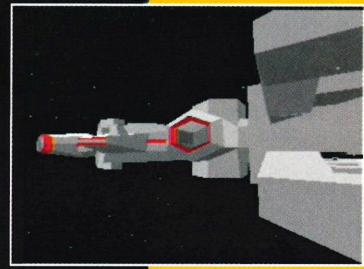
MEGA DRIVE 32X



CHOOSE A GAME:

32X
Super 32X enhanced STAR WARS with extended and more challenging levels.

Arcade
STAR WARS arcade game.



▲ A couple of shots from the game's intro, which is backed by a fully sampled rendition of the film's original soundtrack. The options screen allows you to choose between two different games.

COSMIC CARNAGE

24-MEG
BEAT 'EM UP
OUT EARLY '95

Sega have revealed the Megadrive 32X's very first combat game, and it's looking quite promising.

Previously known as The Ultimate Fighting Game, this sprite-based combat game has been renamed Cosmic Carnage. It's a one-on-one fighting game featuring heavy doses of sprite-scaling, 32X style. The result will remind gamers of the high-quality combat games on the Neo Geo arcade system, such as Art of Fighting 2.

Cosmic Carnage is a beat 'em up set on some of the strangest planets in the galaxy, starring some of the most bizarre aliens you'll ever have seen. As is the norm with combat games this day and age, each character has their own attributes, combat techniques and special moves. However, unlike other combat games, Cosmic Carnage features some characters who are able to bolt on extra weapons to their special armour, and thus boost their already decent range of special moves.

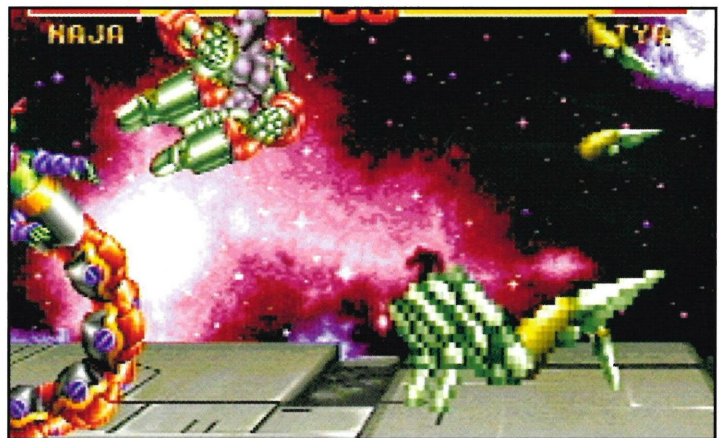
The biggest attraction of the game has to be that sprite-scaling. If the players stand a fair distance apart, the camera angle pans back to accommodate both players. As they get nearer, the camera zooms in to catch the combat at close range. The sprite-scaling is also used on some of the game's special effects. Smack your opponent hard enough and some of his armour flies out of the screen! The camera zooms in even closer, showing the characters fill up the entire screen if one of them pulls off a particularly nasty special move.

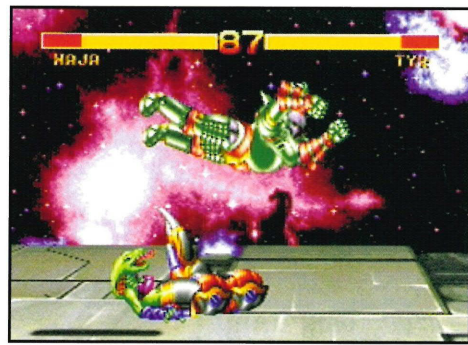
Cosmic Carnage is shaping up pretty well and should be ready for release early in 1995.

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▲ The player selection screen from the forthcoming Cosmic Carnage. Each character is composed of fully animated sprites which are scaled in order to give the game a real sense of depth.

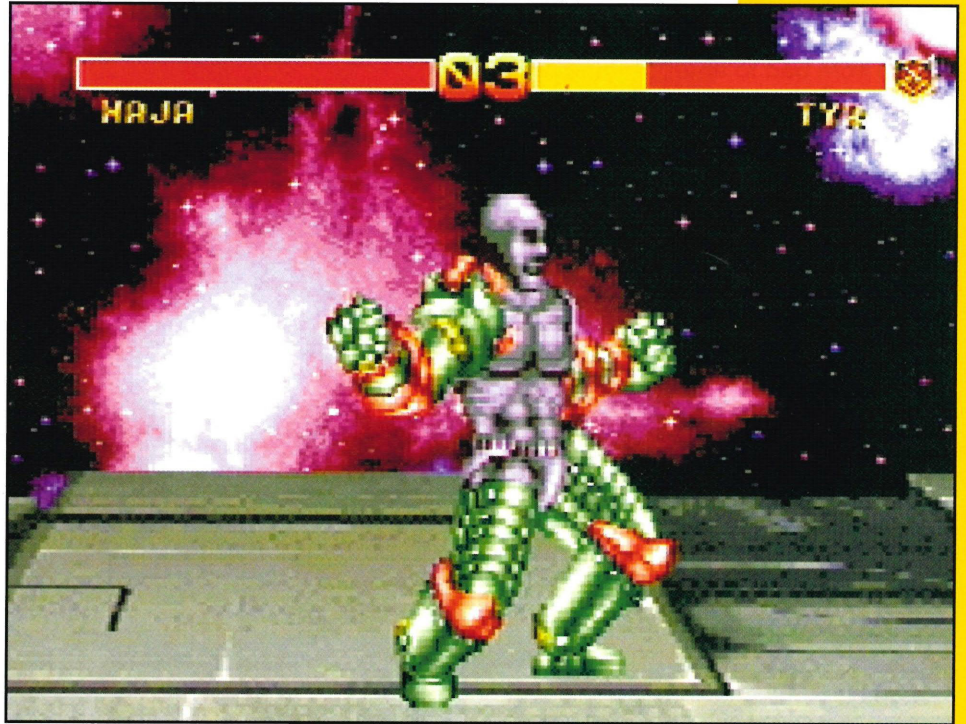




▲ As well as expanding and compressing the sprites to give an illusion of 3D, Cosmic Carnage also changes the perspective on the arena in order to heighten the effect still further. There's no doubting that visually, Cosmic Carnage looks very promising.



▲ When one of the players executes an impressive-looking special move, the game zooms in close on the action.



▲ Cosmic Carnage has more than its fair share of very impressive moves.

▲ The viewpoint changes to accommodate the winning challenger.



GOLF MAGAZINE PRESENTS GREATEST 36 HOLES

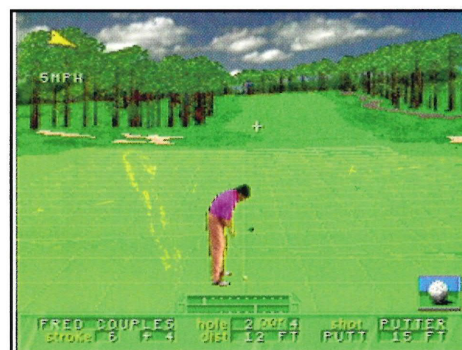
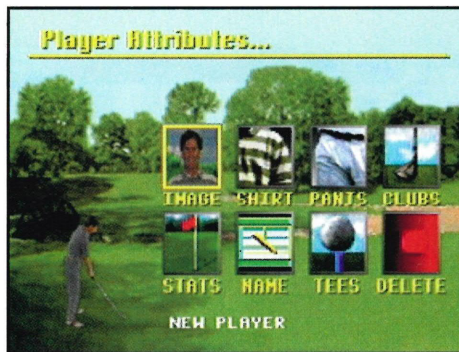
16-MEG
SPORTS
OUT EARLY '95

The Sega Sports range has always boasted a decent range of quality software - and that looks set to expand with the release of the Megadrive 32X.

After Virtua Racing Deluxe, the next Sega Sports title to be released is Golf Magazine Presents Greatest 36 Holes, starring ace golfer Fred Couples. In fact, Couples chose the 36 holes himself, citing each as one of the greatest golfing courses in the entire world. Current 16-bit golfing titles have ranged from bad to amazingly good (PGA Tour Golf remains a classic), but the 3D has always looked a bit ragged around the edges. The programmers of this 32X project have put an incredible amount of effort into the visuals, and the result is graphically amazing. Because the 32X doesn't have to concentrate on constantly updating the images in this game, the coders have been able to put the machine's capabilities to use in creating some utterly stunning looking 3D graphics. As you can see, the result is a golf simulation that looks like something you could only have played previously on a high-end computer that costs hundreds of pounds more than the Megadrive 32X. As a golfing simulation, the game plays quite similarly to PGA Tour Golf (which, believe us, is no bad thing), but the programmers have included loads of options to tweak. As well as setting up different tournaments (including the popular multi-player "skins" betting tourney), Greatest 36 Holes also includes the option to alter the appearance of your golfer. Change your player's trousers into shorts, or go for an incredibly lurid golfing top - the choice is yours. If you're particularly proud of your work, you can save off your player onto the cart's battery backed memory.

There's still plenty of work to be done on Golf Magazine Presents Greatest 36 Holes - so, yes, the finished article should be even better than what you see here in these early work-in-progress shots!

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▲ The Megadrive 32X is capable of some stunning 3D scenery.

METAL HEAD

24-MEG
SHOOT 'EM UP
OUT EARLY '95

Looking more into the future, we can see that Sega have a whole range of exciting products lined up for release on the Megadrive 32X.

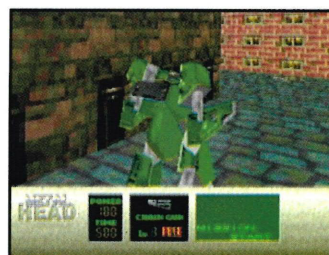
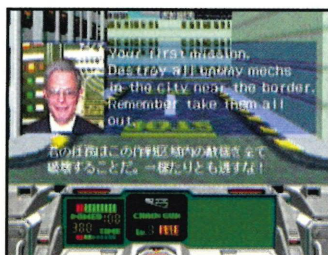
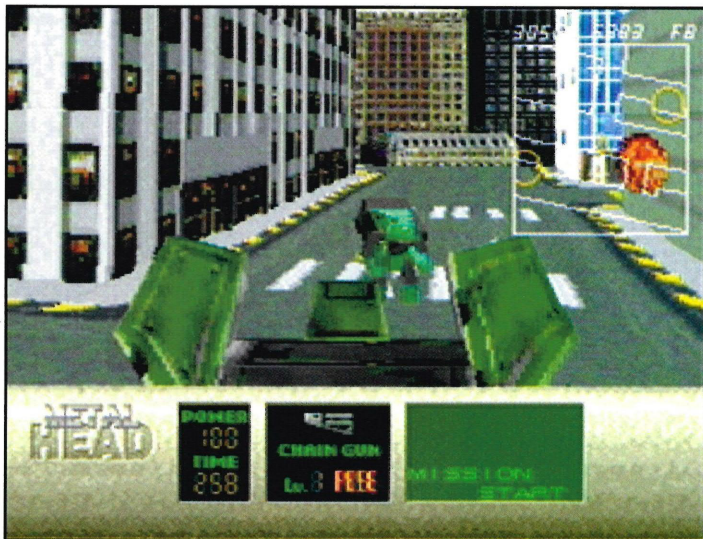
One of the first titles to be revealed to the press (at the June Consumer Electronics Show in Chicago) was Metal Head.

The game is basically a 3D shoot 'em up set in a cityscape, which casts the player as the pilot of a huge, death-dealing robot - looking rather similar to the huge 'Mech robots seen in the BattleTech series of role-playing games. Each of the different combat zones offer a different mission to the player. The first level sees terrorists taking over the city streets, backed up with a vast range of devastating weapons and vehicles. Only the Metal Head robot can take them all out with its range of deadly firepower.

Metal Head uses the 32X's enviable 3D power to good effect. Just like Doom, the game features rapid 3D update whilst maintaining a realistic texture mapped virtual world. And because it's in 3D, Metal Head's programmers have incorporated many different camera angles for players to use, ranging from an overhead view to an intriguing between-the-legs camera angle.

So far, only the first level of Metal Head has been seen by anyone outside of Sega. The shots on this page show that the game has plenty more variety. Look out for Metal Head sometime early on in 1995.

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GOLF / 1709
METAL HEAD
MEGADRIVE
32X

MEGADRIVE
32X
13

AFTERBURNER

16-MEG
SHOOT 'EM UP
OUT EARLY '95

Let's take a trip back in time.

A journey back to 1986, when Sega Amusements were putting together a spectacular new arcade game called Afterburner.

The coin-op was Sega's unofficial follow-up to the previous year's incredible Outrun driving game, and arcadesters were very much looking forward to this new game. Using Sega's incredible Super Scaler technology (which expanded and compressed sprites to provide very realistic 3D), Afterburner was one of the fastest, loudest, most spectacular looking coin-ops of the time. A vastly expensive hydraulic version of the coin-op was released which was basically brilliant (apart from the joystick, which was very unresponsive).

Now players can relive those heady times, (without the unresponsive joystick) in this incredibly close Megadrive 32X conversion. The 32X's powerful SH2 RISC processors have no problem whatsoever in matching the performance of the original arcade machine's Super Scaler technology and the result must be one of the closest arcade conversions ever brought home by Sega. Everything's in there - right down to the hard rock music! Still, you couldn't really expect anything less considering that that the arcade game is getting on for being eight years old! Afterburner is a game you really love or hate. Those who love it say that it remains one of the fastest, most thrill-packed, mindless shoot 'em ups ever devised. Those who don't like it mention something along the lines of the rank simplicity of the game and the fact that it's not the same without the hydraulic cabinet.

Still, in terms of speed, loudness and explosions-per-second, there isn't a game around that can match the 32X conversion of Afterburner. If you're a fan of the coin-op, or you're after a simple, yet highly enjoyable blaster, you can't go wrong. And considering the fact that it's one of the cheapest 32X titles around, it could well end up being one of the most popular.

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▲ It looks exactly the same as the coin-op - and it's just as fast as well! That's Afterburner.



▲ The coin-op's battleship intro sequence has been copied perfectly onto the 32X.



▲ The later levels are packed with enemy planes, making for frenetic play.



THE MEGADRIVE 32X RELEASE SCHEDULE

AFTERBURNER/
RELEASE SCHEDULE
MEGADRIVE
32X

By the time you read this the Megadrive 32X should be on the shelves along with the first three software releases. A tentative, provisional release schedule has been drawn up by Sega. And here it is...

NOVEMBER 1994

DOOM
VIRTUA RACING DELUXE
STAR WARS ARCADE

JANUARY 1995

COSMIC CARNAGE
SPACE HARRIER
AFTERBURNER

FEBRUARY 1995

GOLF MAGAZINE PRESENTS 36
GREATEST HOLES

MARCH 1995

STELLAR ASSAULT
METAL HEAD
WRAITH SQUADRON
COLLEGE BASKETBALL



MEGADRIVE 32X MEGA-CD RELEASES

Development on 32X Mega-CD titles has slipped slightly, but Sega hope to all of the following games out on the shelves by Easter of 1995.

FAHRENHEIT
SURGICAL STRIKE
WIREHEAD
SHADOW OF ATLANTIS



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