

THE MAKING OF VECTORMAN

THIS IS THE STORY BEHIND SEGA'S ANSWER TO DONKEY KONG COUNTRY AND HOW BLUESKY SOFTWARE GOT THE CHANCE TO FINALLY MAKE ITS OWN ORIGINAL ACTION PLATFORMER INSPIRED BY TREASURE'S GUNSTAR HEROES. LEARN HOW VECTORMAN KNOCKED THE SOCKS OFF OF MEGA DRIVE FANS AND DEVELOPERS ALIKE

WORDS BY LD MURPHY



IN THE KNOW

- » **PUBLISHER:**
SEGA
- » **DEVELOPER:**
BLUESKY SOFTWARE
- » **RELEASED:**
1995
- » **PLATFORM:**
MEGA DRIVE
- » **GENRE:**
ACTION PLATFORMER

The heyday of the Mega Drive was also the high-water mark of the prolific California-based developer BlueSky Software. BlueSky made a name for itself in the early Nineties as a mercenary studio of sorts that publishers turned to when they needed a game done right. Electronic Arts reached out to BlueSky to translate its landmark 1986 space sandbox PC game *Starflight* to the Mega Drive in 1991 and Sega personally enlisted the team with squeezing 1993's blockbuster hit *Jurassic Park* into a videogame cartridge mere months after the film's release. This might paint the picture of grizzled veterans taking on projects nobody else dared to, but the studio largely consisted of young kids who were simply excited to be working in the industry. Nevertheless, that didn't stop them from yearning for more. BlueSky alumni Jason Weesner admits, "We were super excited to be working on all this stuff. It was really cool, but we also had aspirations to work on our own thing, [to] come up with our own idea and pitch it."

The team finally got the chance they were looking for via a combination of ingenuity, tenacity and luck.

The earliest stage of the project could be traced back to the work of two of BlueSky's brightest programmers, Karl Robillard and Rich Karpp. Karl came from the ever-innovating Amiga demo scene which came in handy as the Mega Drive used the same Motorola 68000 microprocessor as the Amiga. Meanwhile, Rich knew the ins and outs of the Mega Drive like the back of his hand. They made for an impressive team and together pushed the limits of what the Mega Drive could do. Eventually Karl coded a means of animating spheres in 3D space that looked stunning on Sega's 16-bit console,



DEVELOPER HIGHLIGHTS

STARFLIGHT
SYSTEM: MEGA DRIVE
YEAR: 1991

JURASSIC PARK (PICTURED)
SYSTEM: MEGA DRIVE
YEAR: 1993

SHADOWRUN
SYSTEM: MEGA DRIVE
YEAR: 1994



» [Mega Drive] Vectorman juggles the orbs in his arm joints waiting for the player to do something.



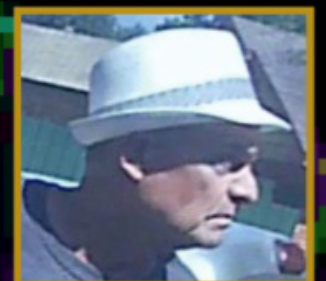
» *Vectorman* co-creator and co-designer Jason Weesner enjoying a road trip alongside his loyal pooch Bebe.



» Mark Botta joined *Vectorman's* programming team yearning to push the Mega Drive to its limits.



» *Vectorman* was lucky to have a truly inspired animation department with Marty Davis in charge.



» The team parades Ellis Goodson's contributions as he's much too humble to do it himself.

MAN

but scarcely taxed its hardware. The pair decided to include the tech in an upcoming *X-Men* game BlueSky was working on. It was planned for the mutants' Danger Room where Professor Xavier would've used his powers to create surreal obstacles for players to overcome. However, the rug was pulled out from underneath their feet when Sega suddenly took the licence back and instead gave it to Headgames.

It was a bitter pill to swallow, especially since BlueSky had loyally developed many successful titles for Sega up to that point, but it was actually a blessing in disguise. Without a game to work on, the team had time to come up with their own original title, and furthermore, they had a fascinating new piece of tech to use in it. Rich, Karl, artist Mark Lorenzen, and budding designer Jason Weesner joined forces and began brainstorming away. But it quickly became clear that inspiration wasn't simply going to land in their laps. Jason concedes, "We decided if we were going to come up with something brand-new [that] we were

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JASON WEESNER

really excited about, [then] we really needed to be inspired in a big way. And we all agreed that we were not going to be very inspired if we sat around the office."

They switched things up by jumping in a car and driving out somewhere new in their hometown of San Diego over the next few weeks. Energised from these excursions away from the office as well as the junk airing on TV, they came up with the theme for their game: 'kill your television'. The hero of their newest creation would gather all of ▶

» [Mega Drive] Getting the Sludge Barge boss' sprite to tilt right was tough, but paid off.



VECTORMAN VERSION 2.0

HOW BLUESKY'S HERO WAS UPDATED FOR THE SEQUEL

■ Although *Vectorman* was released late into the Mega Drive's lifespan, months after the launch of the Sega Saturn in the West, it was still successful enough to warrant a sequel, at least in North America. Jason was brought back for *Vectorman 2* and immediately went to work on improving and expanding upon Vectorman's transformation abilities from the first game. The helicopter and tornado forms returned alongside new transformations of Vectorman on rollerblades, as a tank and even a spaceship. Furthermore, the sequel's insectoid foes could drop Assimilation Icons which allowed Vectorman to temporarily take on buggier forms, including the stinging scorpion, charging rhino beetle and mighty tick.

Marty also returned to work on the sequel as well. For his part, he endeavoured to give the titular hero even more attitude than in the first game. "People really responded to the personality of Vectorman, especially the personality expressed in his idles. So in *Vectorman 2* I tried to bring a little more of that personality into his other animations like the roller-blading [transformation], where I tried to give him a kind of playful, swingin' attitude." Likewise, Vectorman's voice was reworked to be clearer and deeper, which greatly helped as the hero became much more talkative in his second game.



» [Mega Dive] The sequel opens with a pre-rendered Vectorman jamming out to composer Jon Holland's soundtrack. Radical.



» [Mega Dive] Vectorman lashes his tail out to sting an unwitting foe with his scorpion morph.



» [Mega Drive] Vectorman's fish form allows him to swim circles around Sega's other mascot.



► their power-ups by destroying televisions spread throughout the game. Moreover, the main antagonist, Raster, would use televisions to spread its propaganda. Once it became obvious that the game would have a science-fiction setting, the crew agreed to make the hero a robot made of orbs, or 'Orbot' for short. This was partially due to the team's love of Japanese sci-fi movies and anime which was filled to the brim with mechs and robots, but it was a practical decision as well. "We had this technology [that'd] make a robot look much better than an alien or a person," Jason says.

With the theme and setting settled the next hurdle was figuring out the gameplay. The team found themselves searching for inspiration once again, but this time in the form of many of their favourite Mega Drive games including *Castlevania: Bloodlines*, *Ranger X* and *Rocket Knight Adventures*. But one developer stood head and shoulders above the rest in their eyes – Treasure Co, Ltd. "We totally loved Treasure, we worshipped Treasure," Jason gladly proclaims. They adored *Dynamite Headdy* and *McDonald's Treasure Land Adventure*, but they were especially influenced by *Gunstar Heroes*. "Gunstar Heroes is super cool, but it also feels like

MEGA OVERDRIVE

VECTORMAN WASN'T YOUR TYPICAL MEGA DRIVE GAME, IT PUSHED SEGA'S 16-BIT CONSOLE TO ITS LIMITS



SPRITE OVERLOAD

■ The Mega Drive can only display a set number of sprites on any horizontal line. To get around this the team used a sprite cutter program to chop up frames of animation into numerous sprites. These were then adjusted by hand as they were put into the game to ensure they never overtaxed the hardware.



SHOCKING LIGHTING

■ *Vectorman* includes various lighting effects. The hero's blaster and Boost Boots cast flashes of light across his body. In darker areas Vectorman's body is shadowed outside of his glowing eyes and joints. One of the most electrifying effects can be found within Level 12's Nightscape which takes place in a thunderstorm.



VECTOR & SILICON

■ BlueSky invested tens of thousands of dollars into purchasing cutting-edge Silicon Graphics workstations. The team didn't end up using the computers in *Vectorman* as much as they initially planned, but various 3D models can still be found in the game, such as the debris that flies around in the impressive tornado stage.



the development team is showing off." Jason says, "Every level has something crazy that happens, so we thought, 'If we have a bunch of neat tricks that we want to try out, why don't we do the same thing?' That was our design goal with *Vectorman*."

This directly inspired the boss rounds, such as the dizzying swinging train level or the cat-and-mouse scrolling tablecloth stage.

"We would come up with a technical hook first and then we'd come up with a transformation [for Vectorman] after that. That's why all those bonus rounds have special transformations," Jason explains. These proved to be a headache to create though as each boss round features new art and gameplay that is never seen elsewhere in the game. Programmer Mark Botta recalls, "The boss fights were the toughest part of the game to get right. Each one was unique and presented different challenges." Regardless, it was all worth it. After all, the team hoped *Vectorman* would define both BlueSky Software as well as their own careers. They dreamed of earning a spot on the same pedestal as their heroes over at Treasure, beloved and respected by fans and fellow game designers alike.

Jason worked closely alongside Karl, Mark Lorenzen, and Rich planning out gameplay mechanics, bosses, level themes and so on. Meanwhile, more of BlueSky's staff was brought onto the project as the game moved out of preproduction despite that it hadn't

secured a publisher yet. That all changed when representatives from Sega Of America came down to visit BlueSky's offices to assign more sports and licensed games to the studio. Rich and Mark Lorenzen convinced BlueSky president George Kiss to show *Vectorman* to them right then and

there. The project was still very early on in development at this point, in fact the team finalised the name of the protagonist (with Vectorman beating out Shakesphere after an intense debate) within the last week or two. Nonetheless, the timing couldn't have been better. "The thing that we had working for us that we didn't quite know was that *Donkey Kong Country* was about to come out, Jason recalls. "The guys from Sega saw what we had and said, 'Hey, here's our *Donkey Kong Country!*' I don't think

"WE WOULD SELECT INSTRUCTIONS AND REARRANGE CODE TO MINIMISE CLOCKS AND MAXIMISE EFFICIENCY. WE WERE PUSHING THE [MEGA DRIVE] TO ITS LIMITS."

MARK BOTTA



ONE-UPPING MODE 7

■ Level 2 stage Metal Head features a visual trick that gives the SNES' Mode 7 a run for its money. Vectorman trains along a track suspended miles above the ground below as Raster jumps up and climbs along the track to take the hero out. In the meantime, the camera swings left and right to really sell the effect.



OUT-VECTORIZING VECTORMAN

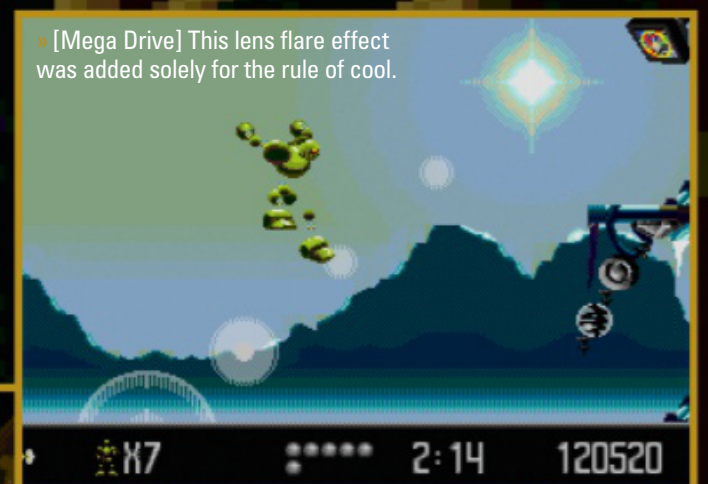
■ While many of *Vectorman's* bosses are spectacles to behold, the most impressive of the lot is arguably Acrobat. These four little vector creatures fluidly combine together in wildly imaginative forms in ways that put Vectorman's own transformations to shame. Marty lists it among his proudest achievements.



» [Mega Drive] The rivet in Clockwork's wheel was cleverly added to make the rolling effect really pop.



» [Mega Drive] The enemy roster isn't limited to mechanical creations. Check out this bear of a boss.



» [Mega Drive] This lens flare effect was added solely for the rule of cool.

» [Mega Drive] Jason tried to pick more unusual level themes. Case in point with the Bamboo Mill.





» [Mega Drive] Hop around quick and don't get squashed by Raster's iron fists on the bamboo table.

► *Vectorman* would exist [without] *Donkey Kong Country*."

It wasn't plain sailing, though. While the team loved the idea of Vectorman consisting of a bunch of balls (even if it did take a number of weeks to get over all the giggling and wisecracking), they struggled to translate it to the screen. That's when Marty Davis was brought into the fold to help get the game on the right track visually. Marty recalls, "They'd kinda gone with more of a kids' style with a big head and a small body, like Mickey Mouse proportions all done in balls. They asked if I could take a crack at it."

However, rather than try to redesign Vectorman, Marty looked back at Mark Lorenzen's earlier sketches of the character. They were bold, heroic and, to Marty at least, looked better. He booted up Karl's Amiga-based Vector Animation Tool, aka VAT, which the team used to animate the characters in-game, and got to work. The Vectorman we know today ultimately came together from Marty's work within VAT and the sketches of BlueSky artist Rick Schmitz and artist/ animator Ellis Goodson.

The VAT program turned out to be a godsend for Marty and his small team of animators. The Mega Drive's hardware allowed developers

to set the priority, or layer, that sprites were displayed to ensure things like character sprites appearing in front of background sprites. VAT took this a step further, giving the animators the ability to assign individual elements of sprites themselves to different layers as well. This created the illusion of 3D depth as characters' body parts naturally overlapped another depending on how they were facing. Marty notes, "It's just a cut-out animation where you're just popping one thing in front of the other, but you could

do clever things [with it.]" Another even more impressive feature was VAT's ability to generate in-betweens from keyframes. Traditional animators usually draw a frame at the beginning of a motion and another at its conclusion. These keyframes become a reference guide as animators then painstakingly draw every step between them, known as in-betweens, to make the motion look smooth and natural. VAT skipped this busywork altogether by calculating the in-betweens from the keyframe data. Of course, the process wasn't perfect, typically requiring fiddling and the inclusion of more keyframes during the movements to get just right, but it still saved a vast amount of time. It also created more frames of animation than what would be feasibly possible for an animator to draw, making each movement silky smooth, especially for its time. On top of that, the frames were calculated computationally in real time solely from the keyframe data which didn't hog up the game's limited memory space with tons of individual frames of animation. In short, they looked great, were quick to make, hardly cost any data, and ran as smooth as butter within the game's 60fps engine. As animator Ellis Goodson puts it, "It was good times. Probably one of the best jobs a guy could have."

With VAT at their side, the animators spent a great deal of time smoothing out each animation and ensured that transitioning between them was quick and organic. But they also had fun with it too, cramming Vectorman full of numerous idle

» [Mega Drive] Vectorman's buggy transformation allows him to zip around crashing through enemies and walls alike.



» [Mega Drive] One of the more bizarre enemies includes Ellis' killer mechanical fire extinguisher.

animations – a stylish move at a time when 16-bit characters rarely had more than one. Marty reminisces, "You were so tight for space, you really had to make trade-offs to make room for everything. To trade out some other little animations, characters, or whatever for idles was a statement. People would say, 'This company's so cool and so under control they can even burn three pretty elaborate animations on various idles.' That was always a big thing." It was just yet another way the team hoped to knock the socks off the industry.

Although, none of this would have been possible without the tireless work of the programming crew. They used every trick in the book to optimise the game – literally. "I had a small booklet that listed the clock cycle count of every instruction on the Motorola 68000," Mark Botta continues. "We would select instructions and rearrange code to minimise clocks and maximise efficiency. Shaving off a few cycles here and



» [Mega Drive] The helicopter form helps Vectorman collect as many photons as possible on his descent.

THE MAKING OF: VECTORMAN



» [Mega Drive] Marty and Ellis worked hard to get the zany swinging monkey boss just right.

“OF ALL THE PROJECTS I’VE DONE IN VIDEO GAMES VECTORMAN WAS THE BEST AS FAR AS [A COLLABORATIVE] EXPERIENCE”

MARTY DAVIS

there really added up. We were pushing the [Mega Drive] to its limits.” Likewise, the animators utilised cuts and cheats wherever possible. “Pieces [that were] already accounted for in the memory budget were sometimes given new palettes to hide the repetition,” Ellis confesses. “For instance, the Sludge Pilot [was made] just using [recoloured] Vectorman pieces.”

Looking back, everyone had the fondest regards for *Vectorman*. “I was super proud of everybody on the team,” Jason states. “It was a blast to be able to pick up a controller and play it. That’s an unparalleled feeling when you see something that [you] came up with and people are [now] playing it. I’m [also] proud that I stood up for my ideas. So much of [i>Vectorman] is so personal in terms of my own contributions and [others] that it’s just cool to look at it as a snapshot of my life.”

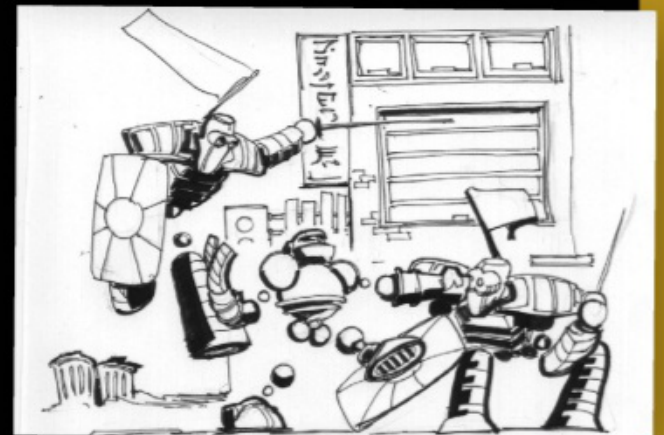
Marty was delighted by what they achieved with the Mega Drive’s hardware. Still, that played second fiddle to his memories of working alongside the team, “I really like the creativity that we employed to meet the challenge. Of all the projects I’ve done in videogames *Vectorman* was the best as far as [a collaborative] experience. Where with every layer there was a new layer of creativity and contribution. It’s not like I did it. It’s cool that we did it. It was a great team effort. I loved working with [everyone] on the team.” Mark Botta cherishes his memories of stepping outside of his programming duties and contributing to the level design, “I am oddly proud that it’s possible to collect every TV in the game. I made a point to go through every level and collect every TV. I moved any I found that couldn’t be collected [in a single run], and adjusted all of them to keep the flow through the level nice and fast.” Finally, everyone was immensely grateful that they were able to work on a game where they were given free rein to go wild creatively and truly make it their own. It was a dream come true. As Ellis puts it, “*Vectorman* was a roll of the dice that came up seven.” ✨

VECTORMAN’S LOST ADVENTURES

THE VECTORMAN 3S THAT COULD HAVE BEEN

■ Jason was involved with two separate attempts (and skirted with a third) to make a proper *Vectorman 3*. The first project was born after Sega swung by BlueSky’s offices to show off the Saturn leading up to its release in the West. It let Jason play Saturn games such as *Astal*, *Clockwork Knight* and *Panzer Dragoon*. Inspired by what the next generation of gaming had to offer, Jason went all in crafting a thoroughly detailed design document with Ellis Goodson providing dozens of concept sketches. The game was dubbed *Vectorman Ultra*. However, by the time the duo was ready to pitch it, BlueSky dissolved its relationship with Sega leaving the project dead in the water.

Later around 2000, Jason, Karl, producer/engineer David Kunkler, and engineer Mike Acton all left BlueSky to start their own development studio called VBlank (no relation to VBlank Entertainment of *Retro City Rampage*). With a powerful original engine under their belt, they approached their old friends at Sega looking for work. Sega sent them a list of properties they were interested in reviving which included *Vectorman*. The team quickly made a playable demo called *Vectorman Neo*



that featured the hero exploring an alien planet. However, when they presented it to Sega the publisher changed its tune, turning its nose up at a property that supposedly, “Didn’t have any name recognition.”

Ironically, just a few years later at E3 2003 Sega unveiled yet another *Vectorman 3*, this time from Pseudo Interactive. Jason was shocked and tried to reach out to the team about the new PS2 game, but he was quickly shut down. It wasn’t a huge loss however as Sega did the same to the game shortly afterwards, leaving three separate *Vectorman 3* projects in the grave.

