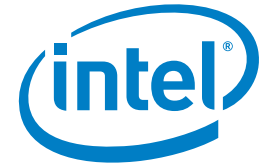


CASE STUDY

4th Generation Intel® Core™ i7 vPro™ Processor
Intel® Audience Impression Metrics Suite

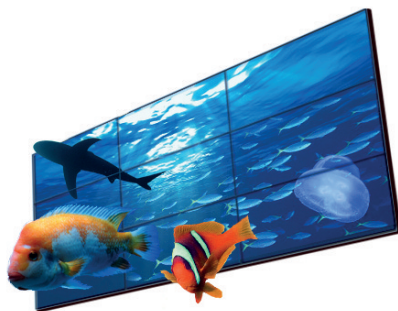
Intelligent Systems
Communications/Media



Getting strategic about digital signage

Intel® technology powers interactive, glasses-free 3D digital signage to open new revenue streams and enrich the consumer experience

Digital out-of-home signage is a fast-growing phenomenon, but standing out from the crowd is becoming increasingly difficult. Based in The Netherlands and with clients around the world, Zero Creative was founded in 2005 and is a pioneer in developing 3D digital signage. It has worked with Intel to develop interactive, 3D signage that enhances the consumer experience with the power of gaming and virtual reality technology.



“With the Intel® Core™ i7 processor, we get both reliability and capacity. It gives us the high-end performance that we demand on behalf of our customers, as well as consistency to ensure there are no stress errors when we ramp up demand.”

*Jean-Pierre van Maasakker,
Co-Founder,
Zero Creative*

CHALLENGES

- **Realize potential.** Move digital signage from flat, uncreative content and enable brands to maximize the unique possibilities offered by digital out-of-home displays.
- **Stand out.** Create advertising and promotional campaigns that stand out among increased amounts of visual stimuli and social media messages.
- **Create an immersive experience.** Bring consumers' experience of gaming and virtual reality to the world of digital signage.
- **Ensure high-end performance.** Guarantee seamless, high-end service in the face of rapid but volatile growth in processing demand.
- **Develop real-time 3D content.** Create immediately available content in response to consumer activity and publish to multiple sites simultaneously.
- **Future proof.** Continue innovating to stay at the forefront of a rapidly evolving industry.

SOLUTIONS

- **Standardize on Intel.** Create homogenous IT environment based on Intel® technology, including the Intel® Core™ i7 processor.
- **Understand customers.** Show how consumers respond to individual campaigns and demonstrate business value with Intel® Audience Impression Metrics Suite (Intel® AIM Suite).
- **Clear product roadmap.** Develop sustainable solutions and plan for future enhancements based on well-defined roadmaps for Intel technologies.

IMPACT

- **Growing customer base.** Zero Creative can count some of the world's best-known brands among its worldwide customer base.
- **Strategic market segments.** It is developing a leading position in fast-growing Asian, Latin American and certain African market segments.
- **Ground-breaking customer experience.** Zero Creative has helped change the way that brands and retailers interact with customers and promote products.
- **Platform for future innovation.** Zero Creative has created a platform that gives it plenty of scope to grow and expand and react to client demand for innovation.

Building the business value of digital signage

Jean-Pierre van Maasakker and his Zero Creative co-founders saw a clear gap in the marketplace. Brands were struggling to showcase their products effectively in an environment that was becoming increasingly crowded with visual stimuli. Digital out-of-home signage was attracting a lot of attention from marketers and advertisers, but the Zero Creative team believed that the technology was still failing to realize its full potential.

“Brands had adopted the latest technologies to be cutting edge rather than to fulfill a business goal,” says van Maasakker. “It was very much technology for technology's sake. Businesses weren't being strategic about it.”

With years of experience designing virtual reality simulations behind them, van Maasakker and his colleagues wanted to develop a solution that offered plenty of opportunities to get creative with content. Zero Creative was born from the belief that the digital medium offers unique opportunities for brands to enhance their consumers' experience and so stand out in a sea of marketing messages.

Viewing interactive 3D content without glasses

For Zero Creative, the potential of digital signage takes two distinct but related forms. First, it allows brands to introduce 3D imagery into their advertising and promotions, immediately transforming consumers into



Internet, gaming and virtual reality come together to create a truly immersive consumer experience

active viewers rather than passive targets. Secondly, it enables organizations to interact with and respond to their customers in real time, which opens up new possibilities for enhanced revenue generation and customer satisfaction.

With these goals in mind, Zero Creative focused on developing, testing and promoting high-end digital signage that offers the best possible user experience. The result is 3DZignage*, a software platform that is now used by brands and retailers around the world to create and publish 3D content that can be viewed without traditional 3D glasses.

With 3DZignage, businesses use a Web-based content management system to produce and display interactive, 3D content over a series of networked displays. Zero Creative's sister company, XYZ Solutions Ltd, produces glasses-free 3D display units that can be deployed easily with 3DZignage, but the platform is hardware neutral and can be used with any appropriate display units. For maximum flexibility it also supports both 2D and 3D displays in the same network, to give brands the choice about when and where to deploy 3D material.

One of the key features of 3DZignage is that it enables businesses to create and update content in real time. The system comes complete with content templates and pre-rendered 3D video, but the computational power behind the system also significantly reduces the time required to render individual advertising spots in 3D. Retailers can create new ads in minutes and respond to consumers by adjusting offers, prices and product details and publish the updates on thousands of screens simultaneously.

Bringing graphics and gaming techniques to 3D signage

From the beginning, Intel has played a key role in the development of Zero Creative's products. At the heart of the 3DZignage platform is the Intel Core i7 processor with Intel® Hyper-Threading Technology, which allows each processor to work on two tasks simultaneously. The Intel Core i7 processor provides a seamless experience when view-

ing and interacting with images and media. Zero Creative has also deployed the Intel® vPro™ platform, which provides additional network security in virtual or cloud-based environments.

Van Maasakker explains the company's choices: "3D graphics require greater computational power than 2D images, but we needed CPU reliability as well as capacity. We get both with the Intel Core i7 processor: the high-end performance that we demand on behalf of our customers, and consistency to ensure there are no stress errors when we ramp up activity and when processing demand spikes."

The Intel Core i7 processor also plays a crucial role in the development of gesture control for Zero Creative's 3D signage products. This interactive capability allows users to manipulate images for a 360-degree view, for example, or swipe through a menu of products and offers or even perform product personalization, but demands seamless production of detailed graphics.

"We wanted to bring touch-screen capabilities to our products for a truly interactive customer experience – but naturally, without touching the screen," says van Maasakker. "Instead, we've built on modern gaming techniques, using Intel's specialist CPUs, to create a system that responds to a viewer's gestures, giving them real control over what they look at."

To measure the impact of its digital promotional campaigns, Zero Creative has also integrated the Intel® AIM Suite into 3DZignage. This technology enables retailers and brands to analyze how shoppers respond to visual messaging. Says van Maasakker: "It's all about results and conversion rates. The Intel AIM Suite is a wonderful tool for understanding exactly how 3D and interactive displays are performing."

Planning for the future with Intel

Zero Creative is currently using 3rd Generation Intel Core i7 processors with additional graphics cards (GPUs). However, the company is planning to migrate to the 4th Generation Intel Core i7 processors to benefit from greater ability to develop solutions on the

Lessons learned

When it comes to grabbing consumers' attention, retailers need to be continuously creative and innovative. Zero Creative has embraced this challenge on its clients' behalf and created an interactive 3D signage solution that not only has the wow factor for consumers, but also enables brands to analyze and measure the effectiveness of their digital advertising and marketing. Achieving excellence in both of these areas means using Intel technology with strong performance, flexibility and a clear roadmap for development.

software stack and to move to a system with embedded, high-end GPUs.

Van Maasakker and his colleagues are also planning on moving 3DZignage to Intel® NUC. "It's an important step for us," he says. "We are optimizing the product to make it work on Intel NUC to give us the smallest possible form factor. Because there are fewer components, there is less potential for errors; the reduced size opens up new opportunities for deploying the system in smaller locations."

For Zero Creative, the clear roadmap and ability to plan for the future are critical advantages of working in the Intel environment. "We are already enabling some of the most innovative campaigns from some of the world's best-known brands," says Van Maasakker. "We want to continue improving our products, heightening the user experience even more and delivering even better results for our customers."

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