

Buying BIM Happiness

HMC Architects CAD Manager Says Performance and ROI Make BOXX the Winner



Steve Bennett is the CAD manager for HMC Architects, one of industry's most prominent designers of education and healthcare facilities. Prior to HMC, he served as technical manager for building and visualization at US CAD, an Autodesk reseller. In all, he has spent over eighteen years in the AEC industry and since 2011 has also devoted some time to his popular blog called *Adventures in the World of BIM*, which generates a good deal of attention from those who specialize in architectural visualization. This past April, one of Steve's blog posts in particular earned a deserved buzz—particularly from those looking for the best computer workstation for Autodesk® Revit®.

The blog post entitled, *Benchmarking the 3DBOXX 4050 XTREME vs. Dell T3600* detailed how, using the latest RevitForum.org benchmark and performing manual tasks on both machines, the 4050XT provided a 28% productivity boost over the Dell system. The blog also turned its attention to the difficulty faced by creative professionals as they make their case for elite hardware (like BOXX) to those who control IT and the company's purse strings. Bennett argued that like most business decisions, it comes down to money:

I know what you are thinking - "How do I convince management/purchasers/IT to switch to BOXX from their cherished status quo?" I've found that you can throw graphs and percentages and "everyone else is doing it" until you are blue in the face. What really gets them is cold, hard cash. How much \$\$\$\$ will the company save if they use this new desktop that costs more than the status quo?

*The steps taken in the benchmark tests represent things that would be done many times throughout the day, but for arguments sake, let's say a person doesn't spend all their time using Revit. In fact, I'll go out on a limb and say we can only apply the increase in speed over the T3600 once per day for an hour. Let's run that number out over the course of a year and say the person's billable rate is \$75/hour (just a guess for a position that involves heavy use of Revit). $\$75/\text{hour} * 250 \text{ working days per year} = \$18,750$.*

This means that if the BOXX runs 28% faster than our T3600, we would save about \$5250 per year on salary as we could get 28% more work done. We would save even more if the person was on an older system. Even if the MSRP on the BOXX was roughly \$3200, ROI is paid in less than a year!

When Bennett first discovered BOXX, it was during his stint at US CAD where he dealt regularly with architectural applications as well as visualization. He was at the annual SIGGRAPH conference and exhibit (this one in Los Angeles) when he visited the BOXX booth and discovered what their systems were capable of. Shortly thereafter, he came across one of US CAD's clients—Five+Design, a Hollywood-based architectural design firm that relied on BOXX for their render farm. "They were working in Autodesk 3ds Max," he recalls, and I really saw, through this firsthand experience, how a customer could benefit from using BOXX. It was pretty sweet stuff and from that time forward, in the back of my mind, I thought, 'It sure would be nice. . .' Shortly after his arrival at HMC, Bennett began

looking for the best possible solution to make Revit Architecture run faster.

Workflow

For design, presentation, and production, the most commonly used applications at HMC are Sketch-Up, Revit, and the Adobe CS6 suite of products. “A smattering of tools are used in the early design stages—anywhere from Power-Point to Sketch-Up to Rhino,” says Bennett. “A lot of the initial concept stuff is done in those applications.”

He explains that at some point in the early schematic design phase, Revit becomes involved in the workflow and then as work progresses through schematic design, design development, and finishing off with construction documents, the workflow tapers away from design applications and becomes more focused in Revit. “We get some pretty good-sized Revit files towards the end of CDs,” says Bennett. “Throughout that workflow, our visualization department will often take a spinoff of the Revit model, or other sources of data, and put it into 3ds Max for either stills or animations. They’re always refining in 3ds Max and making new renderings as the project progresses.”

BOXX Emerges

In 2012, while visiting the BOXX exhibit booth at Autodesk University, Bennett spoke to BOXX guest demo expert George Matos, who at that time was VP/Technology and Visualization at Chipman Design Architecture. (Matos is currently the principal with Chipman’s new modeling, rendering, virtual reality visualization and consultation division, Blue Marble 3D). Bennett remembers Matos as an avid proponent of 3DBOXX 4050 XTREME workstations which had become the system of choice at Chipman. “We chatted for a bit,” says Bennett, “and Matos said that in terms of price, the BOXX systems, for the performance they gave, were much better than a Dell or HP that he had used previously.”

The conversation with Matos led Bennett to conclude that, with HMC’s IT department, it was time to reevaluate the systems they were currently using. “Matos pointed out that Revit was CPU speed dependent which made sense to me— along with the personal testing that I had done previously,” says Bennett. Since he had yet to perform any full-scale, head-to-head benchmarking with the architectural firm’s current systems, Bennett contacted BOXX performance specialist Gerrie Schwartz and requested an evaluation system. “Gerrie went out of her way to make sure that we always had the info we needed quickly—despite many questions that were probably repetitive. She’s great.” Bennett’s interaction with legendary BOXX Technical Support was equally satisfying. “I had some questions about the video card driver and tech support got back to

me in less than an hour,” he recalls. “It was really nice to have such a speedy reply.”

Benchmarking

As benchmark testing using Revit on the 3DBOXX 4050XT vs. the Dell T3600 got underway, the biggest revelation for Bennett was in regard to graphics card usage. “I was surprised that our Dell 3600, which has a Quadro 4000, could not compete against the BOXX system using a Quadro 600,” he says. “The 600 means less memory, less processing power, etc. and yet, through all of the video tests that we ran between the two systems, the BOXX was still outperforming the Dell. My guess is that it’s because of the faster CPU in the BOXX. It can process the information faster to the GPU than the Dell could. Conventional IT wisdom tells you to get the best video card, hard drive, and CPU, but my testing showed that when it comes to Revit, it’s all about the CPU—much more than the other two factors.”



Bennett felt that his benchmarks were so important to Revit users that he decided to post them on his blog. “I’ve always been big on sharing knowledge and when something significant comes my way, I generally get excited about sharing it. That’s what prompted me to do the blog post. The other reason I did it was because a lot of the other customer stories or other things that I’ve seen published are more subjective, and I wanted to get some hard numbers based off of our own systems. I knew that if I went to our CFO and said, ‘Of course BOXX is better—hey, just look at the front grill cover with the removable air filter and oh, by the way, it costs more than my current system but will help us save money,’ it wouldn’t work,” Bennett laughs. “I had to present something that was more logical.”

Making the Case

Bennett took his case for BOXX to management and IT, arguing that investing in BOXX workstations now meant real savings in the long run. “The question I raised was ‘Do we get fewer desktops with better performance, i.e., the BOXX, or do we get more systems with mediocre performance as in the Dell 3600?’” says Bennett. “My opinion was that if go with the better system, we’ll be better off. As we start to buy more of these systems we can slowly expand their use throughout the firm over time. Granted, it doesn’t help as many people right now, but in the end, we will definitely be in a better spot.”

Despite his logical conclusions backed by sound bench

marking, Bennett admits that making the case for more expensive hardware can be an uphill climb—against the bottom line. In his initial blog post, Bennett wrote, “I found that you can discuss percentages and how everyone else is doing it until you’re blue in the face, but what really gets them is cold, hard cash. How much money will the company save that uses a desktop that costs more than the status quo.” It’s a statement he stands firmly behind. “This is one of the biggest points from a CFO perspective,” he says. “The CFO is very focused on our company’s current financials, so he is really concerned about cost. I can show all the benefits and know one thing versus the other, but it always comes back to money.” Bennett says this with a laugh, but then makes it clear that he’s not joking. “I argued that since we are already spending money on new systems to replace older ones, let’s get the best value for our money. That’s what enabled me to get BOXX in the door. The CFO looks at the present term. I have to look at the long term as in which hardware is going to meet the needs of our software usage down the line.”

As for convincing IT personnel to back the switch from status quo to high performance BOXX systems, Bennett points out that IT concerns usually go beyond financial concerns. “IT looks at more than just money,” he says. “They look at your warranty service, support time frames, your compatibility with existing systems and how they interface. They get more involved than just cold, hard cash.”

Although Bennett appreciates the fact that BOXX meets or exceeds the IT criteria (especially in regard to a three year warranty), he believes that the key to the manufacturer’s success in the AEC workplace is the unparalleled performance that comes from overclocking. This feature, that neither Dell nor HP offer, according to Bennett, justifies the cost and despite all the other outstanding BOXX features, is the best reason to depart from what he calls “status quo workstations.”



The Follow-Up

When I initially spoke to Bennett, the thoroughly tested 3DBOXX 4050 XTREME was just being pressed into service for the first time. “It actually went into a production last week,” he said. “In fact, I just spoke with the user this morning and asked him how it was performing and he had this big smile on his face and replied, ‘This is working much better than my last system!’”

The user’s previous system was a few year’s old—a Dell T3500 with a Quadro FX video card. Bennett confided that it had a similar amount of RAM to the 4050XT, but was significantly slower in regard to the CPU (low 2 GHz range). Bennett asked that I give him a few weeks before following up on the actual field testing of the 4050XT. He said that he wanted “the pain of the old machines fresh in the user’s minds.”

When I followed up over a month later, the 3DBOXX 4050 XTREME was currently in use for a pair of construction projects, one of them a new high school for the Irvine (California) Unified School District. A large-scale, multi-million dollar project requiring the services of up to six HMC employees across two offices, the high school features nine buildings with detailed site components. “These are huge files,” says Bennett. “The site file is a couple hundred MB, each building is a couple hundred MB—a gigabyte worth of data that it is trying to regenerate in a view. When you’re in that view for the master site trying to make changes to the site information, the speed at which the view can regenerate is definitely critical. The time required to open views dramatically improved. Opening floor plans, 3D views, sections, and more has all drastically reduced the time they needed to wait until the view would regenerate. That was the biggest workflow issue the BOXX solved.”

The second BOXX user was running three different versions of Revit with three unique projects all at the same time. The user is required to update three fully-developed Revit models, making edits throughout the day. “She’s cycling through hundreds of views throughout the day,” says Bennett, “comparing the floor plan to the reflected ceiling plan, seeing how that compares in 3D, for example. It was a situation her previous computer was not handling too well. Viewing regeneration of other edits is also processor intensive, but this is the biggest savings in terms of time saved. She’s able to work efficiently with the BOXX.”

In both instances, Bennett surmises that over an hour per day is saved by running Revit on the 3DBOXX 4050 XTREME and he credits the machine’s CPU speed for vast improvements to the workflow. I’ve been working at HMC for a little over three years now,” he says, “and it seemed like the overclocked 3DBOXX 4050 was the right answer for what

we were trying to do.” As for the future, more benchmarking is planned, as is the purchase of more BOXX workstations. “We’re very busy at the moment,” says Bennett, “but as we get more systems, we’ll see if we can work them onto the plates of those who use more than just Revit. But right now, our main focus is to get it into the hands of Revit users.”

Bennett also gives the nod to BOXX for what it has done for the morale of those who are fortunate enough to use it. “I’ve heard them say, ‘Wow—this is way faster!’ And they’re definitely happier. Apparently you can buy happiness,” he laughs.

- John Vodrak
Senior Copy Writer/Video Producer
BOXX Technologies

*As this story went to press, Steve Bennett provided us with further detailed benchmarks available [HERE](#). He also provided the following general overview with commentary.

*On our side by side **Dell T3600 vs. 3DBOXX 4050 benchmark**** conducted in the HMC IT department, here are the following results:*

Launching Revit	Dell (18.3)	BOXX (18.7)
Opening a 175MB Revit central file	Dell (4:45)	BOXX (2:00)***
Opening overall Site Plan View	Dell (12.6)	BOXX (10.1)
Open Default 3D View	Dell (30.0)	BOXX (25.5)
Modify Section	Dell (19.7)	BOXX (17.5)

***The system specs match the tabs in the detailed benchmarks for the Dell T3600 & the 3DBOXX 4050 used in this side by side comparison.*

****My jaw dropped and so did everyone else’s in IT when they saw this happen. We repeated this again later and had the same gap in times. BOXX owned the Dell on this test!*

HMC has since purchased a new, compact 3DBOXX 4150 XTREME workstation featuring an overclocked, 4th generation Intel® Core™ i7 processor (4.3 GHz), so look forward to more in-depth benchmarking from Steve Bennett.

[Configure your own 4150 Xtreme now.](#)
[View the 4150 Xtreme Product Page](#)



Steve Bennett is the CAD manager for HMC Architects, one of industry’s most prominent designers of education and healthcare facilities.



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