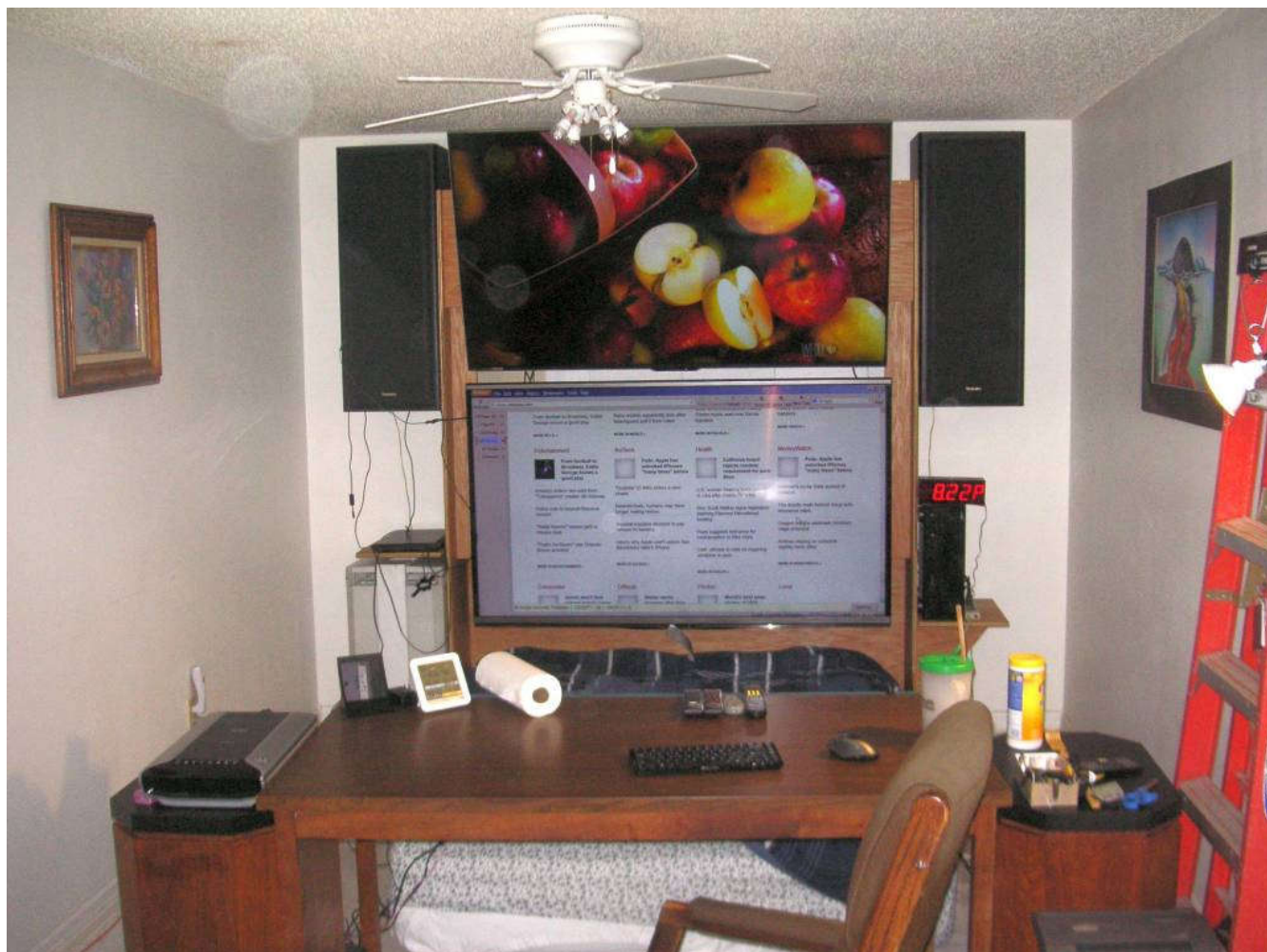




## Entertainment center, 70-inch

After building a 46-inch entertainment center,  
it was time to upgrade to 70-inch TVs.



I have done CAD work on dual monitors for decades. I want my eyes to do some far focus, its helpful to delay worsening nearsightedness. I also found myself watching TV while using the computer. To solve these problems, I built a plywood entertainment center that holds two 70-inch TVs as a dual-monitor setup for my Lenovo laptop. Now I can watch TV on the top 4K set, while using the bottom screen as a monitor. I can also watch two TV shows, or

use both TVs as a dual-head external monitor setup. I tossed a bed down in front so I can watch and/or work while resting recumbent.

Under the laptop shelf is an IQAir HealthPro HEPA filter to keep my allergies at bay. On the right shelf is the audio receiver and a cheap stereo that drives the sub-woofers. Topping those off is an Alpha 5 clock I built from a kit.

I use a wireless keyboard and mouse to operate the laptop, and I run a long USB cable from the laptop to either my flatbed scanner or the SATA 3 dock that holds a 1TB backup SSD. An Oregon Scientific temperature monitor tells me how hot it is outside, in the garage, and in the attic, as well as at the desk.

My Lenovo laptop has VGA and HDMI outputs. So I picked the Sharp 1080 LC-70SQ15U with a VGA input for the bottom TV. I wanted a trusted seller, so I found it at B&H Photo for \$1,595.00.

I recommend the TV review site [rtings.com](http://rtings.com). Its designed by engineers for engineers and will help show how well the TV will work as a monitor. The top TV can be a second monitor, but also a broadcast TV and the display for DVDs and BluRays from the laptop. I also watch YouTube videos on the top TV.

The top TV is also a Sharp, the 4K LC-70UH30U. I found that one at Amazon for \$2,229.99. I waited until the day after Super Bowl. The price went up 300 dollars. Who knew?



I designed the entertainment center in TurboCAD 15. Sharp TVs are about the only ones that publish a detailed drawing that shows the exact dimensions and the location of the VESA mounting holes on the back. While I thought I would have problems with the remotes interacting, the 4K set also has a Bluetooth remote that does not affect the bottom TV. You can see a piece of duct tape over the IR sensor on the top TV. I put eight 1-inch steel ball casters on the bottom. This unit glides effortlessly across the floor when I need to move it.



I used a 3.5-inch section of PVC pipe to run the wires in the back. There are a few short ones dangling, but I have not received the longer cables yet. I used Home Depot red oak  $\frac{3}{4}$  plywood. My receiver is a Denon AVR-1609. The main speakers were given to me by a girlfriend that bought a Bose system. I got a pair of Beverage subwoofers at the eFlea, the Silicon Valley electronic flea market. I drive them with a cheap Sony stereo fed off the Denon subwoofer out. I also got some Advent speakers at the eFlea to use as rear speakers. I operate the laptop via a wireless compact Verbatim keyboard, and a Logitech gamer mouse. Download the TurboCAD drawings and DWG and DXF files [here](#).

Stacked TVs PARTS LIST			
Comp reference	Comp/ Material	Cost	Source
Top TV	Sharp LC-70UH30U 4K	\$2,229	Amazon/ Beach Camera
Bottom TV	Sharp LC-70SQ15U 1080	\$1,595	B&H Photo
Laptop	Lenovo IdeaPad Y580, 15.6" 1920x1080, Blu-ray, i7 3610QM 2.30 GHz, 8 GB, 1 TB, GeForce GTX 660M, Win 7 Pro	\$1099 (8/5/ 2012)	Newegg
Receiver	Denon AVR-1609	\$229 (12/5/ 2009)	Amazon/ Crutchfield
Bass amp	Sony STR-DE197	\$120	eBay
Main Speakers	Technics	Gift	
Subwoofers	Beverage	\$150 (used)	Silicon Valley eFlea
Rear Speakers	Advent	\$50 (used)	eFlea
TV mounts	Atlantic 63607069 Tilting TV Mount	\$69.72	Amazon
Plywood	¾x4'x8' Red Oak Plywood (3 sheets)	\$149	Home Depot

Stacked TVs PARTS LIST			
Comp reference	Comp/ Material	Cost	Source
Casters	ISB Iguchi US-25 1" Flying Saucer Type Ball Transfer (8)	\$47.44	Amazon/ FYH
Wood screws	#6 2-inch, J-Gold, KL81071 1 lb	\$7.49	Ace Hardware
Bolts & nuts	5/16 x 2½ qty 16, plus flat lock		Ace Hardware
Finish	Real Milk Paint Co, Pure Tung Oil - 32 oz	\$18.00	Amazon/ Green Design Center
Antenna	Channel Master CM-4221HD	\$55.99	Amazon/ al-Components
Keyboard	Verbatim Mini Wireless Keyboard, Black 97472	\$37.97	Amazon
Mouse	Logitech M-RCR147 MX1100 wireless	\$30-\$169	eBay
VGA cable	Tripp Lite 6'	\$13.13	Amazon
HDMI cable	Speco Tech 6'	\$4.30	Amazon
Optical cable 1	9' Toslink, Tripp Lite	\$7.54	Amazon
Optical cable 2	12' Toslink, L-com Conn	\$14.58	Amazon



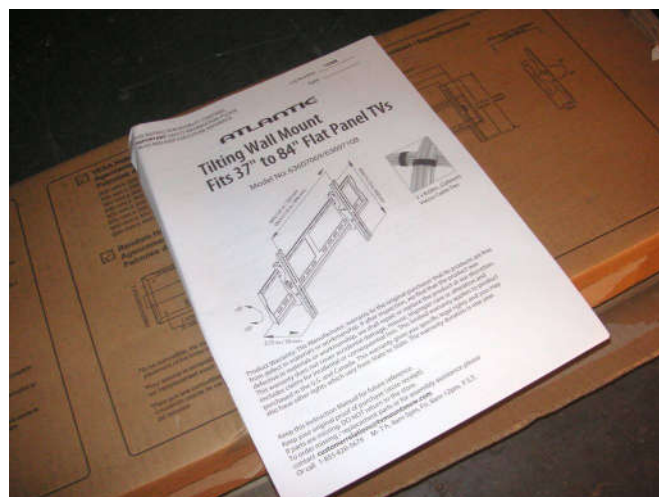
Stacked TVs PARTS LIST			
Comp reference	Comp/ Material	Cost	Source
Audio cable	Stereo mini jack to dual RCA	Opt	From TV 2 if desired
Antenna cable	Tripp Lite 25' F-connectors	\$7.54	Amazon
Speaker cable	Carol Brand / General Cable	\$58.48	Amazon
Clock	Alpha 5 kit	\$145	Evil Mad Science
Network cable	100 ft CAT6 snagless/ molded patch cord, black	\$29.97	Amazon
Plug strip	Tripp Lite TLP74RB, 7 out	\$13.12	Amazon

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Following is montage during the build. If I do it again, I will go 75-inch TVs as it is a more common size with greater selection. Also two different brands so the remotes don't interact.



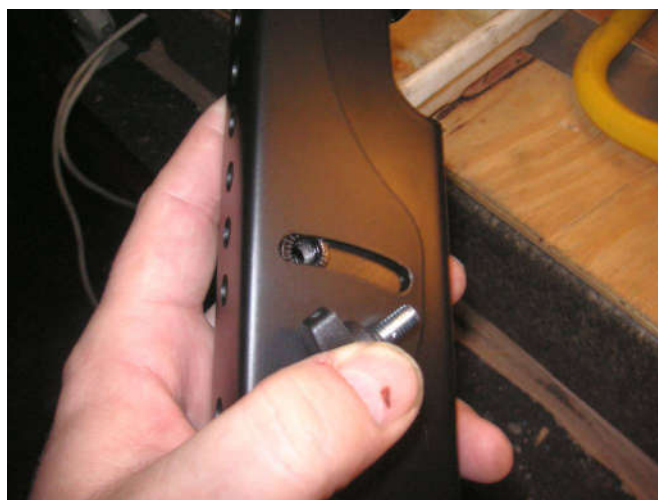
The TV mounts look a little daunting in the box, but once you get past all the metric fasteners, its not too hard to put together.



The mount instructions were pretty good.



I thought these set screws were way too wimpy. They are, bottom TV sagged.



This is all that keeps the TV from slipping down.



I first bought a 70-inch Vizio from Fry's. It failed after a month-design failure row drivers.



The box did have really cool stakes holding it together. It was easy to send back. Fry's refunded no questions asked.



I rotated the box to help mount the TV in the lower position. It was a tricky operation without a helper, the TV is not heavy, but its not light either.



A trick from Paul Grohe, a test lead to the antenna coax center lead will bring in all the UHF stations. Center punch for the hole to get it exact.



The little wire brought in 49 stations. I did not even unpack the bag before this test.



The PBS station on channel 3 came in fine. I sold my 46 inch TVs a year before, so it was nice to have TV again.





Here is the base drilled out for the ball casters.



I tried to use a miter saw to clean up the inside corners.



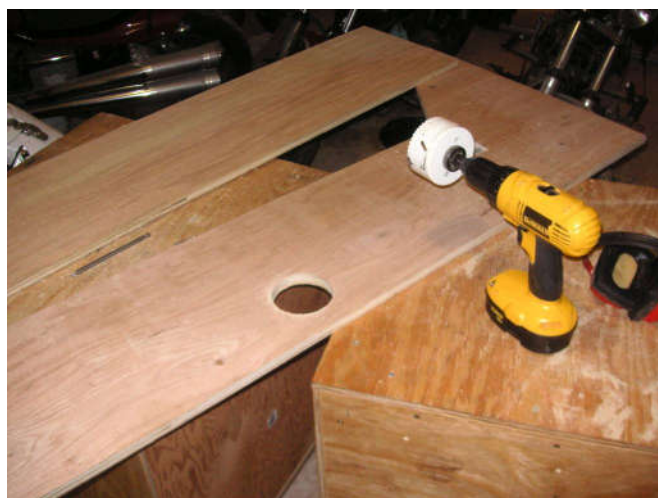
I cut the wood on top of two crates I built to move some Sportster engines.



A jig saw worked much better where the circular saw cuts met..



I used factory edges as a straightedge that I clamped to work piece. I just adjusted the line for the offset of the saw base.



A Milwaukee hole saw in a DeWalt cordless drill for the rear wiring PVC tube holes.

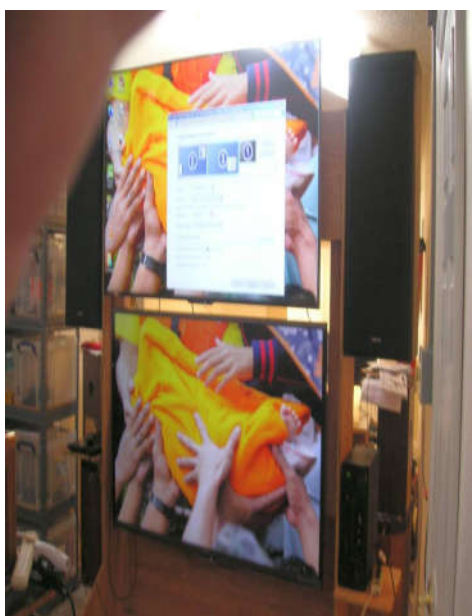




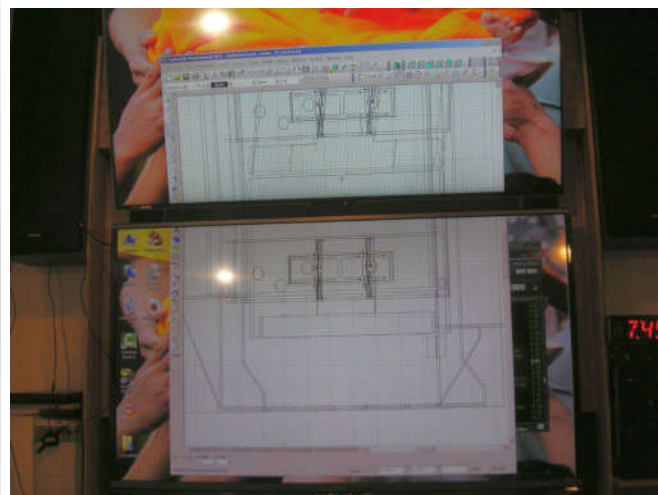
Out of the garage into the living room .



I worry about the fan hitting the top TV if I roll the entertainment center around too cavalierly.



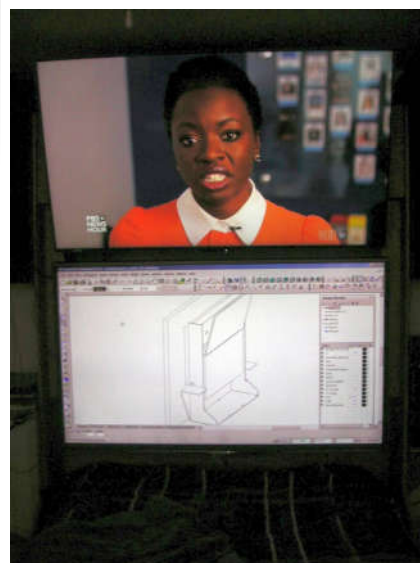
With both TVs mounted and running as dual-screen monitors. It takes a while getting used to stacked monitors compared to side-by-side,



Brightness and color is better on the 4K TB at top.



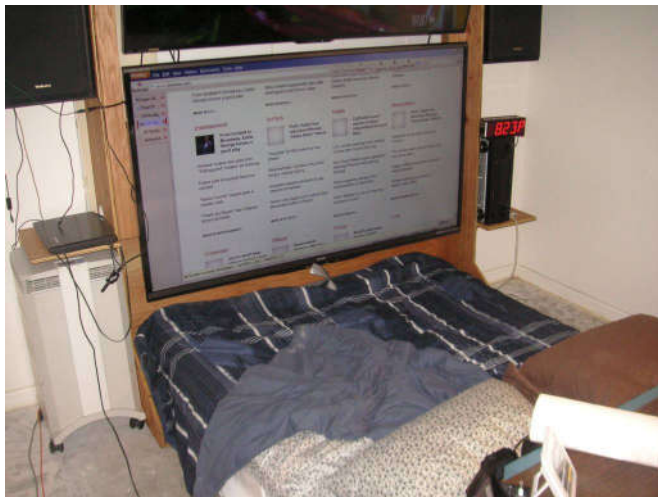
The back with PVC tube for the wiring.



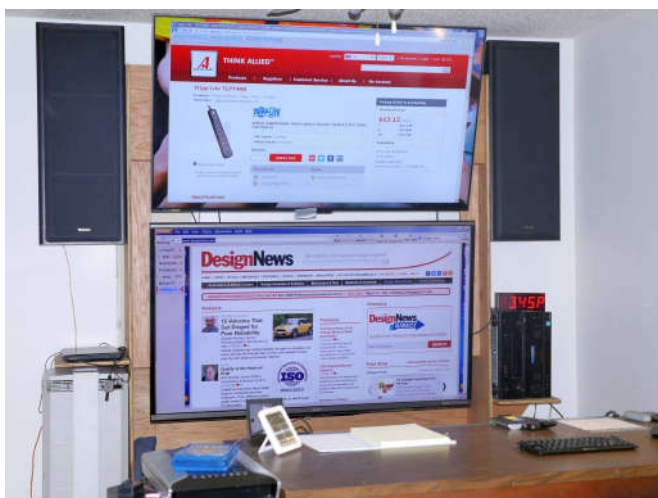
With the top screen as a TV, bottom as a computer monitor. I never got cable, this is broadcast TV



The entertainment center *in-situ*. It fits in the dining room. A spare bed in front, and a desk.



The bed substitutes for a couch.



A view past the desk when in dual monitor mode. Laptop is on left shelf, the audio receiver and sub-woofer on the right.