

Our CarPC saga

We have wanted a CarPC for ages but the price of acceptable level parts was way too high. As things have come down we looked for options after thinking about a Raspberry Pi (too underpowered). We tried a AMD/Via combo but were disappointed with the video and audio ports. Finally settled on this hardware: Note to save money the purchases were made over a period of time as deals showed up on Techbargains and Ebay. Final cost came in at about 1K\$

WARNING OUR INSTALLTION IS A WORK IN PROGRESS AND SUBJET TO UPGRADES AND REWORKING AS THE FIT TAKES US. YMMV. DANGEROUS VOLTAGES AND CURRENTS ARE PRESENT. DON'T ATTEMPT IF YOU ARE NOT QUALIFIED/TRAINED/CRAZY.

2DIN IN DASH 7" Samsung HDMI Touch Screen Monitor Mini ITX USB SD (note 1)
[http://www.ebay.com/itm/111414274073?](http://www.ebay.com/itm/111414274073?ssPageName=STRK:MESINDXX:IT&_trksid=p3984.m1436.l2649)
[ssPageName=STRK:MESINDXX:IT&_trksid=p3984.m1436.l2649](http://www.ebay.com/itm/111414274073?ssPageName=STRK:MESINDXX:IT&_trksid=p3984.m1436.l2649)

ASRock H81M-ITX LGA 1150 Intel H81 HDMI SATA 6Gb/s USB 3.0 Mini ITX Intel Motherboard at Newegg
<http://www.newegg.com/Product/Product.aspx?Item=N82E16813157451>

Intel Pentium G3220 Haswell 3.0GHz LGA 1150 54W Dual-Core BX80646G3220 for low power usage and integrated video via Ebay as used

SSD 120GB via Amazon

8 meg RAM which we had on hand.

GlobalSat BU-353-S4 USB GPS Receiver via Amazon

Vehicle specific PC DC-DC power supply DCX2.180 180W XTX OPUS Solutions Intelligent DC-DC power supply via Ebay

P/S cables direct from OPUS Solution

HD Car radio Directed HD Radio DMHD1000 via Ebay

MJS HD Radio USB PC Interface Cable via Amazon.

Noise cancelling microphone USB-SA Andrea External USB Soundcard / SuperBeam Microphone Bundle from Amazon

Combined Bluetooth and WiFi dongle Cirago Bluetooth 3.0 High Speed & Wi-Fi Combo USB Mini Adapter (could have saved \$\$ by buying separate dongles but was concerned about available USB ports at one point)

(note 1. Cheaper versions are available without the case but we thought we might put everything in the SVX Double DIN space. Not so, BUT we were able to use the case as the PC case in the trunk after a bit of tin knocking to support the head unit in the DIN cage and to close off the now open end of the case. Other version come without a case but do provide cage mounting supports)

Car Amp Infinity Kappa-Five 1200W 5-Channel Class D Car Power Car Amplifier/Amp (we picked up a factory refurb via EBay

A backup camera as the head unit can auto switch to the backup view. We used a license plate version from Amazon.

A powered USB hub HIGH-SPEED USB 7-PORT HUB POWERED +AC ADAPTER CABLE via EBay (It has to be powered at 5V or 12V. Not 9V.

A 12V relay

VGA or HDMI cable, a bunch of long USB cables/extensions to reach from the head unit and PC if not located with the head unit. Automobile rated 12 and 14 gauge color coded wire. 12V Relay and 3 device fuse block.

Windows 8.1 because it boots super fast

MS Streets and Trips (because the competition is no longer available or supported)

BlueSoleil Bluetooth software as the Windows software is inadequate

(whew)

Build up the PC and test it with a spare/borrowed monitor and AC PC power supply as the screen is a bit tiny to trouble shoot any driver issues and to eliminate any DC P/S issues. We used a thumb drive as the initial boot device.

Set up drivers for all the peripherals that you can test on the bench, e.g. Bluetooth, wifi, GPS.etc

Install the other software like BlueSoleil, Streets and Trips and a front end Like Ride Runner (see MP3Car.com for help with that)

Set screen resolution to the head unit native 800X480 if you want. Configure Ride Runner (see MP3Car.com for help with that)

Setup temporary power to the head unit (we used the regulated 12V from the PC power supply) and USB hub (again from the PC). The head unit will use 3 (or 4 memory fails) USB ports hence the need for a powered hub.

Power on and verify the head unit works as a display, touch input and SD/Thumb drive reader.

Mount the head unit and hub in the SVX radio cage (Best to do this with a spare one so not to mess up your pristine SVX)

To get the radio door to function it will be necessary to file down the left lower corner of the head unit bezel. If you penetrate through the plastic on the corner just fill the hole with black liquid tape.

We worked up a back panel for the head unit to 1. hold the USB hub, 2. provide more accessible connection to the analog video from the backup camera and 3. provide a connection point for the VGA input to the head. (should have used HDMI but that is a whole other story and a wrong path due to the first build with the AMD/VIA motherboard)

Setup the DC to DC power supply and test it with a spare fully charged car battery

The rest is running cables in the car including ACC On from the SVX audio harness and 12-14V car power to the PC in the trunk (or where ever) and regulated PC power 12V and 5V back to the head unit and hub, dim interior lighting sense from the SVX audio harness to the head unit, and back up sense from some reverse on 12V point (for simplicity if not short wire run we tapped that of a backup light).

You may also need a relay to power a delayed start of the car amplifier, turn on the radio and raise the SVX antenna.

Places and people we got help from

<http://www.mp3car.com/vbulletin/>

<http://ae64.com/SVXharness.htm>

<http://ae64.com/SVXAUDIOInstall.htm>

<http://www.opussolutions.com/>

All the SVXers on FaceBook and the two forums at <http://www.subaru-svx.net/forum/> and <http://svxworldforums.com/>

Finding your own piece/parts is an exercise left to the student

Photos of various parts and issues



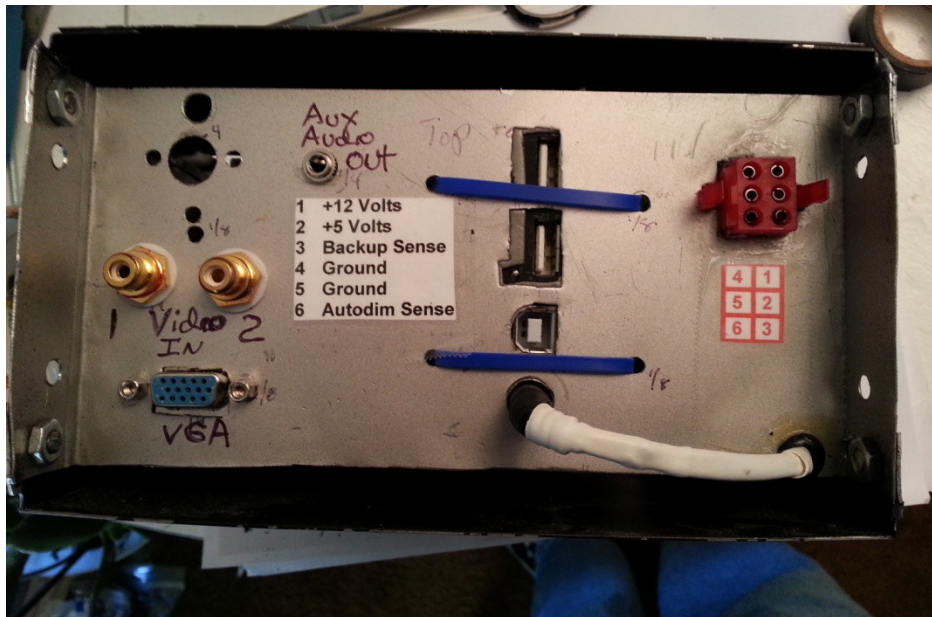
Back side of head unit and later replaced AMD/VIA motherboard in the case



View of filled corner of head unit. Later we would find we need to trim it some more



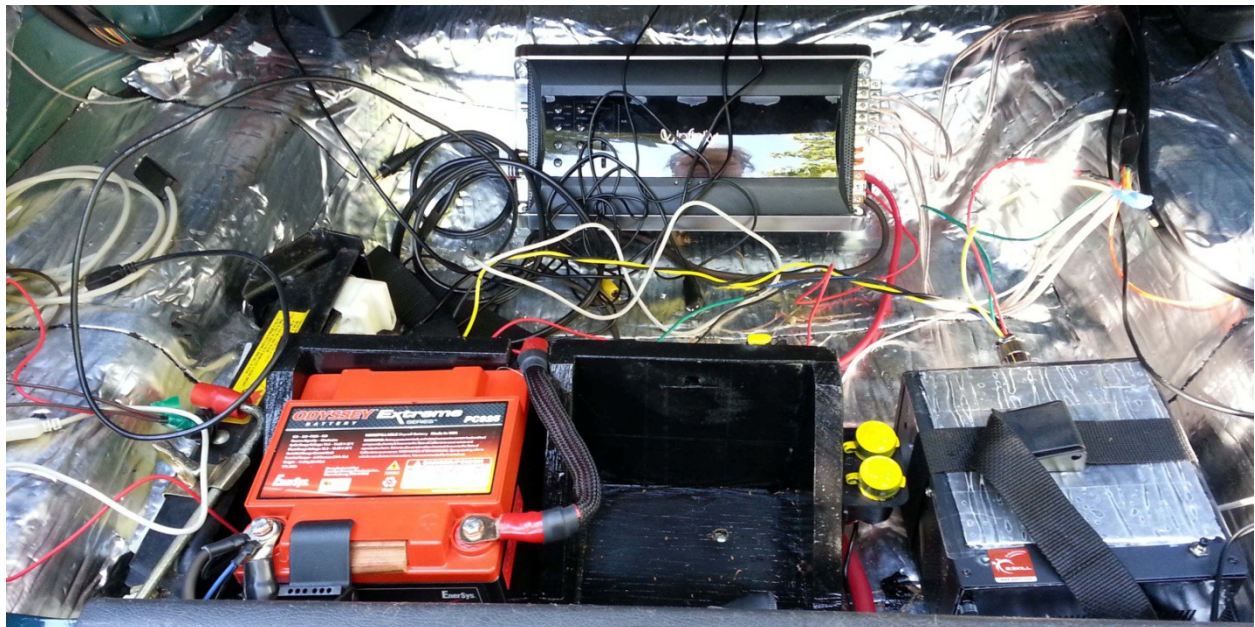
head unit screen running Ride Runner front end on our first build on the bench



Really crappy work in progress /reworked back panel for the SVX cage that holds the USB hub, Power in and video in/out.



A trial fit of the head unit



Trunk wheel well before wire grooming. AGM battery homemade battery box (with room for a second battery, PC and hold down clamp, and car amp. Relay and device fuse holder are not visible being mounted to the front facing wall of the battery box. Battery and PC are held in place with cam lock straps from StrapWorks <http://www.strapworks.com/default.asp>



View of the final installed head unit



Booted up PC displayed on the head unit.