

Forum:[Hack Forums](#)

Thread: [\[TUT/Project\] Rotating directional antenna grid build+ cracking rig - update 19.08.15](#)

pomwtin - September 26, 2014, 3:25 pm

Hy there!

This is my first bigger project in this field and I decided to share it, so it may help or inspire someone to build his/her own.

If interest will be big enough, i will make exact documentation of final product, free to use ?

How it started

One day I tried to do my first war-drive and so I scanned whole village I live in- 106 APs showed+ 8 hidden ones were indicated, but not displayed.

Having house on highest point in village, I decided to do some tests.

I scanned upper floor with atheros360h- monitor mode, and noticed that if I put wifi card out of roof-window it can find APs which are on the other side of village, and this made me think- if I get directional antenna... then what? :)

So I bought ALFAs AGA 2424T and made another scan. It could see almost every AP in direction that roof-window allowed me to turn it.

This is how I decided for this project- High placed, cheap and easy to control antenna grid.

The most important things needed

-Not to mention, we will need directional antenna, wireless card and quality antenna cable (with low signal loss).

-For rotation we need two rotors (vertical and horizontal rotation), which can be remotely or wired controlled- I decided for cheapest I could get in reasonable time, so I bought "AntennaCraft TDP2 TV Antenna Rotor Automatic Outdoor Rotator".

It can be found on ebay, here:

http://www.ebay.com/itm/271419644721?ssPageName=STRK:MEW NX:IT&_trksid=p3984.m1497.l2649

-Steel- 4mm steel plates and dia. 48mm tube with 4mm wall thickness (this can be adjusted for your construction calculations/ different mounting techniques)

-Welding apparatus

-Sliding bearings

These are just major things, all of others can be found below on pictures, video or description ;)

Blueprint

So this was first idea I got (click to enlarge):

[\[img\]http://shrani.si/t/1s/ka/2tb8FltS/3/20140926232051.jpg\[/img\]](http://shrani.si/t/1s/ka/2tb8FltS/3/20140926232051.jpg)

Meanwhile working, I made some improvements, for which I do not have blueprint- you can see the differences between this blueprint and reality below.

Realisation

Grid is made of upper and lower part:

Upper part is holding antenna and rotating it up and down, lower part is holding upper part and rotating it left and right.

It is important for rotators only to rotate and NOT to bear whole construction- this way they will serve you longer.

Problem with this kind of rotators:

Only one diameter of pin is right one for it to be centric. With all other in supported range rotation is eccentric, so some kind of eccentric clutch is needed- I used hard rubber tube (eccenter is minimal, ca 0,8mm so this solution is acceptable).

Manufacturer does not provide information of which diameter can be used for ideal centric rotation.

Lower part:

You can notice two holders- upper and lower (lower is near to upper part rotator).

The upper one have additional carriers as it will hold whole weight of upper part and horizontal forces, the lower one will only be competing against horizontal forces.

On top of both will be sliding bearings which will hold upper part.

click to enlarge:

[\[img\]http://shrani.si/t/1e/II/FboDkoS/1/20140926231436.jpg\[/img\]](http://shrani.si/t/1e/II/FboDkoS/1/20140926231436.jpg)

[\[img\]http://shrani.si/t/3q/2D/41jJo0Z7/1/20140926231506.jpg\[/img\]](http://shrani.si/t/3q/2D/41jJo0Z7/1/20140926231506.jpg)

Upper part:

This is dynamic part of grid. The whole "T" construction and antenna pin (silver thingie) is able to rotate.

click to enlarge:

[\[img\]http://shrani.si/t/3Y/Kr/38tudVI0/20140926231300.jpg\[/img\]](http://shrani.si/t/3Y/Kr/38tudVI0/20140926231300.jpg)

[\[img\]http://shrani.si/t/1T/Tb/3zMzcx5k/20140926231210.jpg\[/img\]](http://shrani.si/t/1T/Tb/3zMzcx5k/20140926231210.jpg)

[\[img\]http://shrani.si/t/3o/yn/1WxA1e4s/20140926231203.jpg\[/img\]](http://shrani.si/t/3o/yn/1WxA1e4s/20140926231203.jpg)

[\[img\]http://shrani.si/t/39/2z/1JXcNoLO/20140926231146.jpg\[/img\]](http://shrani.si/t/39/2z/1JXcNoLO/20140926231146.jpg)

[\[img\]http://shrani.si/t/O/hG/2LTSErmZ/20140926231130.jpg\[/img\]](http://shrani.si/t/O/hG/2LTSErmZ/20140926231130.jpg)

Upper part test of up-down rotor:

Today I managed to come so far I could test upper part up-down rotation.

The tools on antenna pin represents antenna (right side) and counter-mass/counter-momentum (left side).

As you can see in video attached below, test was succesful :D

[Video: <http://youtu.be/Ljvcb6d9SDI>]

In plan:

finish rotation construction

Sensor placement for critical positions

Galvanization protection (Zinc)

Rain protection for rotor on upper part (it is not mounted as instructed by manufacturer- horizontal instead of vertical position)

This is as far as I got with project.

As soon as I will have some spare time and manage to make progress, I will keep you informed.

If you have any questions, feel free to ask :)

Regards ?

Mad76e - September 26, 2014, 3:49 pm

I think I have misjudged you a little. I got out of bed just to give you 3+ This is hacking at its best.. To think outside the box. Very very good

pomwtin - September 26, 2014, 3:55 pm

Thank you for comment :)

And it will get even better ?

Mad76e - September 26, 2014, 3:55 pm

Hmma. Btw, i got a friend that has a satellite dish connected to something like that with a box under his TV to control the rotation to the sat-dish.. so i wonder if there's some kind of memory control, to get back to that specific AP (Example)

pomwtin - September 26, 2014, 4:00 pm

Yes it is possible, but this cheap rotators does not have this option, I will have to help myself here with wardrive map i made before

With some better ones you get PC software, which have a lot of functions.. with these two I got only stickers to note where channels (APs) are :P

But hey, they are affordable and carry out the needed task :D

Twhitten - September 26, 2014, 4:40 pm

VERY GOOD!!!! This is something like I use for testing towers for the WISP I worked for.

I did the same with the TV rotor, but not with the V/H changer. Of course I always knew what polarity the tower was so that was a non issue. We used outdoor POE radios so cable loss was not a issue either.

We do have boom trucks though with a mount welded on the bucket so I would just mount my dish in correct polarity raise the bucket and sit in the truck in the A/C in summer or heater in the winter with my laptop and do my testing the easy way. When you are out there by yourself for a week straight of testing a new tower this makes it SOO much easier.

Glad to see someone else thinks outside the box like I do, you are pretty awesome, if I could give you points I sure would for this.

Rogers Communications - September 26, 2014, 8:24 pm

<https://www.youtube.com/watch?v=JhMuo-76uE4>

This is my Parabolic setup.. control box is inside!

PinkPanther - September 26, 2014, 9:06 pm

Pomwtin, awesome project man! Your beads look better than mine. Glad to see dedicated people with ingenuity! Do you plan to make altitude adjustable?

(Sep 26, 2014 08:24 PM)wpginterceptor Wrote: [\[CITE\]](https://www.youtube.com/watch?v=JhMuo-76uE4)
<https://www.youtube.com/watch?v=JhMuo-76uE4>

This is my Parabolic setup.. control box is inside!
Old LTD everytime. ?

sp3ctrum - September 27, 2014, 9:44 am

This is really nice, great job for real. Need to see more posts like this!

pomwtin - September 27, 2014, 1:41 pm

Twritten thank you for reply and explanation. Seems to me like you have access to some very interesting equipement ?

wpginterceptor nice setup ?

I have one question (since you have only left-right rotation)... is it a problem not to have up-down rotation of antenna (one like shown on my video), or the signal gain isn't worth the problem setting up another rotator?

PinkPanther thank you ?

Just to be sure that i understood correctly, by altitude did you mean tube length? if so, then yes. But it will only be adjustable by hand, used for storing and setting back up the antenna (meanwhile winter, storms etc...).

I do not think that lets say 10° offset (caused by targeting AP from higher ground) from polarisation position will affect communication with AP so much, so i think there is no need for altitude remote control.

Please tell if i am wrong, there is still time to fix this ?

Gator- thank you! Will try to do my best ?

Rogers Communications - September 27, 2014, 2:48 pm

it doesn't make much of a difference up and down. if you wanted to do 2 for up and down etc, you would need a better rotator, more heavy duty, to handle the extra weight! and they do make them

PinkPanther - September 27, 2014, 2:52 pm

(Sep 27, 2014 01:41 PM)pomwtin Wrote: [\[CITE\]](#) PinkPanther thank you ?

Just to be sure that i understood correctly, by altitude did you mean tube length? if so, then yes. But it will only be adjustable by hand, used for storing and setting back up the antenna (meanwhile winter, storms etc...).

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Please tell if i am wrong, there is still time to fix this ?

Whoops! I just realized you built in attitude control with the second rotator. I didn't see it at first. And yeah, I was talking about the up and down rotation of the dish, not tube length. I know, I slow sometimes. ?

pomwtin - September 27, 2014, 3:20 pm

Oh ok then, looks like i am on right way :)

wpginterceptor that is why i decided to include holders and counterweight in my build, rotator is powerfull enough, but is not made for heavy load

Rogers Communications - September 27, 2014, 3:40 pm

I mean during a windy day, if its not heavy duty, the gears will strip in the rotator!

1ethality - September 28, 2014, 8:23 am

Omg its really nice , great job for real..

pomwtin - September 28, 2014, 2:19 pm

(Sep 27, 2014 03:40 PM)wpginterceptor Wrote: [\[CITE\]](#) I mean during a windy day, if its not heavy duty, the gears will strip in the rotator!

Hmm, that might be a problem.. i live in really windy place ???

if this happens then i am getting heavy-duty one for sure, or at least putting brake on this one.

1ethality thank you ?

well today i had some free time, so there is update ?

1st i noticed major construction flaw... i do not know how i missed this ???

Holders have ben cuted, so newly made antenna holder can be installed :D

click to enlarge:

[\[img\]http://shrani.si/t/M/FL/1PD5poH2/20140928201556.jpg](http://shrani.si/t/M/FL/1PD5poH2/20140928201556.jpg)[\[img\]](#)

[\[img\]http://shrani.si/t/1D/nO/3NOhuAQO/20140928201137.jpg](http://shrani.si/t/1D/nO/3NOhuAQO/20140928201137.jpg)[\[img\]](#)

[\[img\]http://shrani.si/t/w/5R/pRNAspC/20140928201121.jpg](http://shrani.si/t/w/5R/pRNAspC/20140928201121.jpg)[\[img\]](#)

You will notice that antenna holder is actually remade original one :)

why... because I´m too lazy to make it from scratch ?

everything was put together and tested. As i did not mannage to make counter-weight today, some tools were used instead of it. And for gods sake please do not mind mess in the background... i did not tidy garage for looong time ?

Rotation at beginning and "fine tunning" at end:

[Video: <https://www.youtube.com/watch?v=ILHCINUSrrQ>]

If all goes well, tomorrow i will make counter-weight and another pair of sliding bearings, so i could mount upper part onto lower one :D

Oh and i allready arranged for galvanization ?

PinkPanther - September 28, 2014, 3:12 pm

Yes, now that is really impressive!

pomwtin - September 28, 2014, 3:17 pm

Thank you :)

Till this point (almost) everything went as planned, hopefully it will stay that way :)

Rogers Communications - September 28, 2014, 6:00 pm

also, get a better antenna.. that Chinese parabolic is crap! get a professional Parabolic antenna.. big

difference

PinkPanther - September 28, 2014, 6:08 pm

(Sep 28, 2014 06:00 PM)wpginterceptor Wrote: [\[CITE\]](#) also, get a better antenna.. that Chinese parabolic is crap! get a professional Parabolic antenna.. big difference

What you talk'n bout Wpginterceptor? There is nothing crap about this design. It's mass produced and different people sell the same thing for more or less. The only difference is the feed horn. Several companies put better feed horns on the base reflector. How can a parabolic reflector be crap?

I've used a TV dish and this "chinese crap" outperform them anyday. It also outperforms anything else I've got for 13cm, and I'm a registered amateur operator.

jayku161 - September 28, 2014, 10:51 pm

Hey great, Its awesome how much does the whole thing cost you

pomwtin - September 29, 2014, 2:13 pm

Well actually i am pleased with this antenna (as far as i mannaged to test it), so i see no need to upgrade soon or upgrade at all.

jayku161, steel tubes were 20 EUR, both rotors 100 EUR +20 EUR import cost, and 40, EUR for antenna.

Other parts are made by me, so final cost (without electricity- welding) would be around 180 EUR, approx. 230 USD.

Oh and galvanization (zinc) will cost me a can of beer ?

Today i did not do all things planned, i have had to stay a bit longer at my part-time job ???
But i did made counter-weight ? (without holders)

It is made out of a 380mm steel tube with two M6 mounting points, with inner radius 36mm, filled with lead.

A few "spy" pictures of making process are posted below, and that is it for today...

from oven to weight ? (click to enlarge):

[\[img\]http://shrani.si/t/2u/a5/10qi8FJZ/20140929211229.jpg\[/img\]](http://shrani.si/t/2u/a5/10qi8FJZ/20140929211229.jpg)
[\[img\]http://shrani.si/t/3B/XM/2Cry5JSq/20140929211133.jpg\[/img\]](http://shrani.si/t/3B/XM/2Cry5JSq/20140929211133.jpg)
[\[img\]http://shrani.si/t/1n/jX/3Vesexle/20140929211239.jpg\[/img\]](http://shrani.si/t/1n/jX/3Vesexle/20140929211239.jpg)
[\[img\]http://shrani.si/t/J/Vx/3ARAgewA/20140929211458.jpg\[/img\]](http://shrani.si/t/J/Vx/3ARAgewA/20140929211458.jpg)
[\[img\]http://shrani.si/t/2Z/lyS/4JDQVWsF/20140929212109.jpg\[/img\]](http://shrani.si/t/2Z/lyS/4JDQVWsF/20140929212109.jpg)
[\[img\]http://shrani.si/t/28/zR/2lk1spP5/20140929212147.jpg\[/img\]](http://shrani.si/t/28/zR/2lk1spP5/20140929212147.jpg)
[\[img\]http://shrani.si/t/21/3A/3Fql4ioF/20140929212303.jpg\[/img\]](http://shrani.si/t/21/3A/3Fql4ioF/20140929212303.jpg)
[\[img\]http://shrani.si/t/1c/TP/2V9r8swW/1/20140929212625.jpg\[/img\]](http://shrani.si/t/1c/TP/2V9r8swW/1/20140929212625.jpg)

Will try to do more tomorrow ?

Rogers Communications - September 30, 2014, 8:24 pm

(Sep 28, 2014 06:08 PM)PinkPanther Wrote: [\[CITE\]](#) What you talk'n bout Wpginterceptor? There is nothing crap about this design. It's mass produced and different people sell the same thing for more or less. The only difference is the feed horn. Several companies put better feed horns on the base reflector. How can a parabolic reflector be crap?

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Yeah I had a Nerd license back 20 years ago too... didn't give me super powers! ?
Worked as a tech for Motorola for 15 years and didn't get rich from that either!

That Parabolic Chinese doesn't work very good, its 18 dbi at best!
Put it this way, if my professional Parabola is TRUE 24 dbi, then how can that smaller Chinese be 24 dbi? IMPOSSIBLE!
Check your dimensions.. There are some other ebayers selling parabolics at 20dbi with the exact same dimensions as the 24, LEAST THEY ARE BEING HONEST!!
Ive already debated this in other threads and even posted pic to show the size difference.. not to mention the signal difference is night and day!
just saying, take my word for it or don't... idc

<https://hackforums.net/showthread.php?tid=3852026>

PS: im running the CALAMP parabola, unfortunately they don't sell them anymore.. its a professionally made antenna complete with swr chart!

dammit.. I had a pic of the antennas together to show difference in size and construction, cant find it now.. That video I posted showing my parabola turning via the rotator.. gives you an idea the size below a discone antenna!

Mad76e - October 1, 2014, 5:20 am

(Sep 30, 2014 08:24 PM)wpginterceptor Wrote: [\[CITE\]](#) Yeah I had a Nerd license back 20 years ago too... didn't give me super powers! ?
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Yeah, the Grid parabolic antenna are starting to get a problem nowadays.. I have seen a lot of measurements on that antenna. The closest to 24dBi i think is Tp-links TL-ANT2424B. But im not sure.. Please link me to one in that case..

This one is 1000x600mm

http://www.tp-link.se/Resources/document/7106500760_TL-ANT2424B.pdf

Edit: I can't see the the pics in that link

PinkPanther - October 1, 2014, 11:30 am

(Sep 30, 2014 08:24 PM)wpginterceptor Wrote: [\[CITE\]](#) That Parabolic Chinese doesn't work very good, its 18 dbi at best!

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(Oct 1, 2014 05:20 AM)mad76e™ Wrote: [\[CITE\]](#) Yeah, the Grid parabolic antenna are starting to get a problem nowadays.. I have seen a lot of measurements on that antenna. The closest to 24dBi i think is Tp-links TL-ANT2424B. But im not sure.. Please link me to one in that case..

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http://www.tp-link.se/Resources/document/7106500760_TL-ANT2424B.pdf

It's disappointing that you both post misinformation without any proof. These antennas are completely capable of 24dbi and above.

The gain of a dish style antenna are dependant on several factors, of which 2 main factors:
Reflector Diameter

Aperture Efficiency

The antennas I will be looking at include the TL-ANT2424B, and Hg2424eg (tp-link and hyperlink 24dbi die cast grids)

Diameter = 1 meter

f/d = 0.34

Considering these two factors a maximum gain of ~33dbi is possible at 100% aperture efficiency. Since these are marketed at 24dbi, you can calculate an aperture efficiency of the average dipole feed.

Here is the real world: The top is 6dbi rubber and bottom 24dbi grid. Notice the difference in signal almost exactly adds up to the difference in gain.

Mad76e - October 1, 2014, 12:09 pm

(Oct 1, 2014 11:30 AM)PinkPanther Wrote: [\[CITE\]](#) It's disappointing that you both post misinformation without any proof. These antennas are completely capable of 24dbi and above.

Hey, don't involve me in that... I got no proof at all but i got a lot of common sense.. Theres a lot of grind parabolic antennas out there that promise a lot of things. Its common sense that a bigger grind antenna would give a stronger signal. The more you can reflect down to the feed. the better signal.

Now when you find a smaller grid parabocic antenna that also clames 24dBi then at least I get suspicious.

Please notice the sentence i wrote "The closest to 24dBi i think is Tp-links TL-ANT2424B. But im not sure"

Rogers Communications - October 1, 2014, 8:18 pm

Proof? I cant give you any better proof than self testing myself! As ive said on numerous occasions I have 30 years experience in the antenna theory and tested the Chinese parabola vertical and horizontal....not to mention, I posted pics to show the difference in size to a professional 24 DBI antenna compared to Chinese Parabola!

Don't get me wrong, the Chinese Parabola out performed the yagi but that's not saying much.. My professional Parabola wiped the floor with the Chinese ebay parabola!

If the Chinese parabola is a car, its an Suv... my professional parabola is a Mustang! best I can describe it

As for size difference.. the Chinese parabola, I could easily walk thru my house with it... the professional parabola.. I had to snake and wiggle my way thru the house to get it outside!!! much bigger.. grid wise!!

Mad76e - October 3, 2014, 5:18 am

(Sep 26, 2014 03:55 PM)pomwtin Wrote: [\[CITE\]](#) ...

Any news? Want a new update ?

pomwtin - October 4, 2014, 11:51 am

wpginterceptor, mad76e™ and PinkPanther thanks for debate about antenna, you inspired me to learn more about how antennas work.

Cant wait to find some reading material ?

Update ?

I was away from monday to friday because of college started again, so there will be updates from now on between weekends only ?

But today i was able to do some things ?

First i painted counter weight, but still didnt create its mounting point ?

(click to enlarge)

[\[img\]http://shrani.si/t/3j/sZ/NRpw09G/dsc08345.jpg](http://shrani.si/t/3j/sZ/NRpw09G/dsc08345.jpg)[\[/img\]](#)

[\[img\]http://shrani.si/t/1B/wB/2C1f458V/dsc08346.jpg](http://shrani.si/t/1B/wB/2C1f458V/dsc08346.jpg)[\[/img\]](#)

The next thing in plan was mounting upper part to lower one:

Again a holder was needed to be cut, so assambly would be simpler:

(click to enlarge)

[\[img\]http://shrani.si/t/3b/Pe/2Ot7LNua/20141004151753.jpg](http://shrani.si/t/3b/Pe/2Ot7LNua/20141004151753.jpg)[\[/img\]](#)

Then after bearings were mounted on holders, axial holder of upper part was welded in place.

To make it simpler, additional "sacrificial" sliding bearing was made- see pictures why:

(click to enlarge)

[\[img\]http://shrani.si/t/1h/T5/2B7hYtFV/20141004175926.jpg](http://shrani.si/t/1h/T5/2B7hYtFV/20141004175926.jpg)[\[/img\]](#)

[\[img\]http://shrani.si/t/2t/xz/4T10b0oQ/20141004180310.jpg](http://shrani.si/t/2t/xz/4T10b0oQ/20141004180310.jpg)[\[/img\]](#)

[\[img\]http://shrani.si/t/y/Wx/2ZKSOqUT/20141004182658.jpg](http://shrani.si/t/y/Wx/2ZKSOqUT/20141004182658.jpg)[\[/img\]](#)

And this is current state:

(click to enlarge)

[\[img\]http://shrani.si/t/41/11Z/Mmt2H3A/1/dsc08338.jpg\[/img\]](http://shrani.si/t/41/11Z/Mmt2H3A/1/dsc08338.jpg)

[\[img\]http://shrani.si/t/4/DI/3XHe1xJa/dsc08334.jpg\[/img\]](http://shrani.si/t/4/DI/3XHe1xJa/dsc08334.jpg)

[\[img\]http://shrani.si/t/2m/10Z/L7WHFG9/dsc08337.jpg\[/img\]](http://shrani.si/t/2m/10Z/L7WHFG9/dsc08337.jpg)

I did not make left-right rotation test, because i run out of material for excentric clutch- maby tomorrow ?

For tomorrow i have in plans mounting counter weight, make another excentric clutch as mentioned above (if i come to needed material.. it is sunday and stores are closed) and figure out where and what kind of sensor to mount, so dish could not hit steel pole.

It may be good to make lube-storing lines inside bearing, but i am not sure if this is needed because i used self-lubing plastic material, so i will have to ask someone for opinion first.

I also figured out how to synchronize rotors with control pad without turning them 360° (up-down rotation can not be rotated whole circle), but i will write more about this tomorrow, as i have to test if it really works, or it was just coincidence.

Synchronization is needed because after a lot of rotation rotor and controller do not show the same position... the offset is getting bigger and bigger with number of rotations

Oh yes and some proper-length screws and "secure" bolts also need to be bought.

TheGrayAviator - October 5, 2014, 1:32 am

(Sep 26, 2014 08:24 PM)wpginterceptor Wrote: [\[CITE\]](#)

<https://www.youtube.com/watch?v=JhMuo-76uE4>

This is my Parabolic setup.. control box is inside!

That is so sweet, now no one can suspect a damn thing.

@pomwtinf, if you want to learn more about antennas, you should do a Ham Radio course, they teach a lot about that.

I am about to get my Ham radio license....

pomwtin - October 5, 2014, 11:32 am

(Oct 5, 2014 01:32 AM)Greyhat.Infiltrator Wrote: [\[CITE\]](#) That is so sweet, now no one can suspect a damn thing.

@pomwtinf, if you want to learn more about antennas, you should do a Ham Radio course, they teach a lot about that.

I am about to get my Ham radio license....

Thanks for advice. If i find some time i will look into it ?

and about project: today i didnt do anything but calclate length of counter weight holder ?
expect update on friday or saturday ?

x34c - October 5, 2014, 1:06 pm

Is that a time machine?

Or a intersteller laser beam destroyer?

pomwtin - October 5, 2014, 1:43 pm

hehe, interstellar laser beam destroyer ?

it just happened that i have one spare reactor core laying in my basement, so i have to use all that energy somewhere ?

JackChitt - October 5, 2014, 2:44 pm

Interesting project! I have a TV antenna that has a rotation remote. May have to follow in your footsteps. I get tired of having to go adjust my antenna after a storm..

pomwtin - October 5, 2014, 3:19 pm

Thank you ?

Nlce to see you again on forums, its been a while.

Yes, if you live in stormy place, this rotors are time savers (as i read on forums while searching for them).

JackChitt - October 5, 2014, 4:14 pm

(Oct 5, 2014 03:19 PM)pomwtin Wrote: [\[CITE\]](#) Thank you ?

Nlce to see you again on forums, its been a while.

Yes, if you live in stormy place, this rotors are time savers (as i read on forums while searching for them).

Yea.. Kinda caught a 3 month ban and a rep fuck for posting in the wrong section and telling HF staff to fuck off in a contact form message.. Oh well.. ? First time for everything I guess..

pomwtin - October 5, 2014, 4:23 pm

Well... sh*t happens ;)

Welcome back :D

toogood - October 5, 2014, 5:23 pm

Aye WB Jack was wondering what happened to you :)

TheGrayAviator - October 5, 2014, 9:03 pm

(Oct 5, 2014 04:14 PM)JackChitt Wrote: [\[CITE\]](#) and telling HF staff to fuck off in a contact form message.. Oh well.. ? First time for everything I guess..

Nice work mate, I don't blame you for doing that. I wonder what really happened to the freedom of speech?

pomwtin - October 10, 2014, 11:44 am

Since i got home a quite a bit later than usually, there is only minor update... just cant wait to go to sleep... tired as hell ?

Anyway, i confirmed my synchronization method.

This are original instructions:

PHP Code

<?php

Synchronizing and Testing

Follow these steps to synchronize and test the antenna rotator.

1. After you wire the drive motor and the control, plug the control's power cord into a standard AC outlet (120 volts, 60 Hz).
2. Turn the control's dial fully clockwise. You can hear the control's motor running as the red dot on the control's dial slowly moves clockwise and the top of the drive motor turns. When the rotator reaches the end of rotation, the top of the drive motor stops turn-

ing, the control's motor turns off, and the dot stops moving.

Note:

Depending on the original setting of the drive motor, it might stop turning before the control motor turns off. If this happens, wait for the control's red dot to stop moving before you proceed to Step 3.

3. Turn the control's dial fully counterclockwise. When the control's motor turns off and the dot stops moving, the control and the drive motor are synchronized. Setting the control's dial to

N

(north)

should align the two arrows on the side of the drive motor — one on the side of the base and one on the side of the rotating top.

Note:

If the arrows do not align, try Steps 2 and 3 again. If the drive motor's arrows still do not align when you set the control's dial to

N

, take the antenna rotator to your local RadioShack store for assistance.

4. Disconnect the rotator cable from the control so that you can mount the drive motor.

Now since i wont be able to turn antenna (up-down rotation) for full 360 degrees something needed to be changed, and i found this solution ? :

- disconnect rotator from control panel and turn position button it fully clockwise and wait for controll panels motor to stop.

- connect rotator back to control pannel and turn position button fully counterclockwise and wait for controls panel motor to stop.

Thats it, control pannels position button (indicator) and rotator are now fully sinchronized, with minimum rotators rotation needed.

However, three additional switches (one for each rotator cable) needs to be installed on control panel for easier disconnection/connection of rotator. I have ordered them today.

Tomorrow at about same time as now, i will post video of ALMOST fully functional antenna- the only things missing will be sensors, which i did not received yet.

After that, all steel parts will be send to galvanization.

pomwtin - October 11, 2014, 2:28 pm

And it is alive ?

[Video: http://youtu.be/FST-_Hg0EMM]

pomwtin - October 17, 2014, 11:22 am

Ok smaller update today:

Steel parts were galvanized and welds painted to decrease possibility of rusting.

[img]<http://shrani.si/t/3G/En/29e8cZf5/img20141017195820.jpg>[img]

[img]<http://shrani.si/t/2i/yx/2UkCKDO7/img20141017195825.jpg>[img]

[img]<http://shrani.si/t/2E/3X/SxouLIP/img20141017195833.jpg>[img]

Well.. what is point of antenna if there is no cracking rig, right? ?

So, while paint on welds is drying, i will be testing temperatures on my graphic cards and if needed replace thermal tabs ?

 

Mad76e - October 17, 2014, 11:51 am

(Oct 17, 2014 11:22 AM)pomwtin Wrote: [\[CITE\]](#) Well.. what is point of antenna if there is no cracking rig, right? ?

So, while paint on welds is drying, i will be testing temperatures on my graphic cards and if needed replace thermal tabs ?

 

Yeah... That's more like it.. However normally you don't have to change heatsink or fans. those cards can handle the temp up to 90 degrees Celsius.. just keep it ventilated as you do when you're mining.

pomwtin - October 17, 2014, 12:58 pm

well actually i never tried to mine :p

cards will be used with risers, so there will be some space between them, and grid will be in climated room.

i opened one, and thermal pads were more like thermal dust.. so this is why i decided to test them seperatly and change pads in oppened one :)

right now i am setting kali up on usb, and then testing begins :)

abansb - October 17, 2014, 1:01 pm

wow nice job looks nice can't wait to see how it performs I was wanting to build antenna like this may try it here soon

PinkPanther - October 17, 2014, 1:07 pm

Wow, I don't know about your previous wifi rig, but this one is truly expert grade.

pomwtin - October 17, 2014, 1:34 pm

abansb feel free to ask any questions if you will need any help :)

thanks pinkpanther :D

my previous grid contains asus k50in (kali+bt5+win7) with awuso36nh, and i am still trying to set up my pwnphone- external wifi card do not "see" channels 12 and up for some reason (while internal does)... but this can wait, i decided to finish this one first :)

Mad76e - October 17, 2014, 2:29 pm

(Oct 17, 2014 12:58 PM)pomwtin Wrote: [\[CITE\]](#) well actually i never tried to mine :p
cards will be used with risers, so there will be some space between them, and grid will be in climated room.

i opened one, and thermal pads were more like thermal dust.. so this is why i decided to test them seperatly and change pads in oppened one :)
right now i am setting kali up on usb, and then testing begins :)
Yeah.. Its of most importance that the heat sinks is free from dust..

try to clean them with Air dust spray once every half year or so..

[This is what im talking about](#)

Mine however broke :/ Thunder took mine.. The only card survived is a RADEON R7 260X OC 2GB.. ??

pomwtin - October 17, 2014, 3:07 pm

is it equally good to clean it with compressed air from compressor? or is high humidity too much of a problem?

wow that sucks... thanks for warning me. Will install some storm protection (seafy fuses) too

Mad76e - October 17, 2014, 4:03 pm

(Oct 17, 2014 03:07 PM)pomwtin Wrote: [CITE](#) is it equally good to clean it with compressed air from compressor? or is high humidity too much of a problem?

wow that sucks... thanks for warning me. Will install some storm protection (seafy fuses) too
i would avoid compressors, theres a chance that small oil particles from the compressor could destroy the circuit board also humidity might be a problem, however it depends what kind of compressor you own.

pomwtin - October 17, 2014, 4:06 pm

well its a cheap one with no humidity filter :p
so either dust spray or complete disassamble of card and then cleaning...
so will have to check if i can buy one of those cans here (must say that i did not see it anywhere before)...
did you have any kind of seafy fuses when tunder strucked?

Mad76e - October 17, 2014, 4:15 pm

(Oct 17, 2014 04:06 PM)pomwtin Wrote: [CITE](#) well its a cheap one with no humidity filter :p
so either dust spray or complete disassamble of card and then cleaning...
so will have to check if i can buy one of those cans here (must say that i did not see it anywhere before)...
did you have any kind of seafy fuses when tunder strucked?

Ohh... and avoid vacuum cleaner aswell.. There is always a chance of ESD-damage when doing that

No, sorry.. A lazy stupid mistake.. So i have to restart, and collecting \$ again, its going to take a while tho.. Family always comes first, and a new rig is expensive

pomwtin - October 17, 2014, 4:21 pm

i know i already killed one with vacuum cleaner few years ago, while dusting computer :/

i just asked to see, if there are chances that seafy fuse fails (i know there are, but they should be minimal).
you are right, family always on first place. everything else can wait :)

JackChitt - October 17, 2014, 4:30 pm

Dude, you are a god! I have always wanted to make something similar to this. Just curious, how much did this project cost you? And is it as loud as the video sounds? Sounds like an overhead crane moving around.. :D

Mad76e - October 17, 2014, 4:41 pm

(Oct 17, 2014 04:06 PM)pomwtin Wrote: [\[CITE\]](#) ...

so will have to check if i can buy one of those cans here (must say that i did not see it anywhere before)...

check at your nearest electronics store / hobby shop that sells computer parts.

hmm .. The rig will draw some power .. did you intend to run 2x 1000 watt PSU or 2x 1500? I do not know if 2x 1000 is enough .. how many watts does each card need?

pomwtin - October 17, 2014, 5:06 pm

(Oct 17, 2014 04:30 PM)JackChitt Wrote: [\[CITE\]](#) Dude, you are a god! I have always wanted to make something similar to this. Just curious, how much did this project cost you? And is it as loud as the video sounds? Sounds like an overhead crane moving around.. :D

hehe :D in fact it is a bit quieter- big empty garage played the same role as sound amplifier. but it still is quite noisy :)

antenna part was around 230 usd and mobo+cards around 800 usd.

i yet have to buy proper psu which is around 300 usd and one sata hdd (i figured out live usb with persistence is not fast enough) so this is another 55 usd.

altogether 1385 usd (saved from part time job on school free days from almost 1 year ?)

mad76e thanks, will check it out.

i am not sure about wattage- that is why i still did not bought psu.

To be sure, i will first test one card under heavy load (pyrit or hashcat) and measure its wattage, then multiply with 5. And then try with two cards and repeat the process.

I actually did not managed to find some real (in actual use) numbers for this card... so test is needed.

after that i will go shopping ;)

system will have its own 600w psu (my old superflower)

edit: i searched a bit again and found that 1100w psu (80+) is enough for 4*5970 for number crunching... but still, i think it is better to make a test :)

link: <http://blog.zorinaq.com/?e=42>

Mad76e - October 17, 2014, 5:23 pm

(Oct 17, 2014 05:06 PM)pomwtin Wrote: [\[CITE\]](#) hehe :D in fact it is a bit quieter- big empty garage played the same role as sound amplifier. but it still is quite noisy :)

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I actually did not managed to find some real (in actual use) numbers for this card... so test is needed.

after that i will go shopping ;)

system will have its own 600w psu (my old superflower)Thats a good idea, and you can if you want drive one of those cards as well with it.. I think the motherboard and a single harddrive will be okay with 300w :D I have a small memory about we discussed this before (I might be wrong tho) i think 300W for each card will be enough, which means that you need (Apart from the 600watt you already have) you need atleast 300x4 + a small margin (never good to run maximum effect.. better to have a margin, and a cooler PSU) so 1500 more watts maybe

Edit.. yeah.. test first.

JackChitt - October 17, 2014, 7:15 pm

(Oct 17, 2014 05:06 PM)pomwtin Wrote: [\[CITE\]](#) hehe :D in fact it is a bit quieter- big empty garage played the same role assound amplifier. but it still is quite noisy :)

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alltogether 1385 usd (saved from part time job on school free days from almost 1 year ?)

Interesting. So your antenna pretty much has an independent computer to control it.. Seems a little overkill but still awesome none the less. I personally would have went with a micro robotics controller and a wireless receiver. A basic 4 channel RC remote would do the trick and would be plenty strong enough to control it from indoors. As far as your USB problem is concerned. May I suggest going with An Alfa R36 repeating router with the wireless turned off, Paired with an Alfa AWUS036H and a cat5 cable ran into your home connected to a router of your choosing. This is my future dream project, if I can ever get the time. You have inspired me to make this happen in the next year or so! ? Keep up the excellent work friend!

pomwtin - October 18, 2014, 5:39 am

mad76e™ yes we did discuss about this earlier :D

it was then when i came to conclusion that 1600+600w may be enough, buti did not mannaged to test it yet (school, work...)

in about an hour i will get hdd and be finally able to run some tests :D

JackChitt antenna wont be connected to this computer if possible.

as mentioned before, antenna will be the highest point in place i live and i am afraid of thunder struck (thunder already strucked our house twice), so some seafy steps must be taken.

the plan is to use this computer for cracking only and fcorse for antenna in nice weather only :D

Very nice suggestion indeed. Will take closer look on it as soon as i finish antenna holders for roof :)

I am glad to hear that :D That is why i decided to share this project.. to inspire someone, as i was inspired with many other stuff here on hf :D

toogood - October 18, 2014, 5:46 am

You def inspired me.... love the updates through your progression

pomwtin - October 18, 2014, 6:40 am

toogood thank you :D

If all goes well, gpu needed wattage will be known today (just came from the store with my hdd :D) and tomorrow material for roof holders should arrive :D

Ok drivers installation succeded and pyrit benchmark was made with one hd 5970.

five testw was run, average GPU pmks is 73590 mpks/s, what is expected from what i read on internet.

idle temperature is 58°C, temperature after 5th pyrit benchmark was 74,5°C.

I yet have to make tests with hashcat, as i will use it most.

temperature was taken through "aticonfig --odgt"

GFX wattage was not measured as i did not have right tools at home (forgot i borrowed them :(-) - i will get them on friday :D (el currency measurement, voltage ---> wattage)

however, i did measure wattage of whole system:

- 125GB ssd
- amd phenom x4 BE 2,4 ghz (stock cooler)
- 1x hd5970
- 4gb ddr3
- psu superflower 650w

average wattage in system idle was 90w

average wattage under pyrit benchmark was 320w, peak was 400w.

JackChitt - October 18, 2014, 2:12 pm

Quote:JackChitt antenna wont be connected to this computer if possible.

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Very nice suggestion indeed. Will take closer look on it as soon as i finish antenna holders for roof :)
I am glad to hear that :D That is why i decided to share this project.. to inspire someone, as i was inspired with many other stuff here on hf :D

Maybe consider a WiFi Pineapple in place of the Alfa r36. It would cut your cost and you could use them graphics cards to crack indoors and that way everything would be all safe and secure. ?

pomwtin - October 18, 2014, 2:38 pm

but wont aditional transmitter cause even more interference?

Ok i mannaged to do pyrit benchmark with 2x hd5970 (158051.4 PMKs/s)

results:

PHP Code

<?php

Pyrit 0.4.1-dev (svn r308) (C) 2008-2011 Lukas Lueg <http://pyrit.googlecode.com>

This code is distributed under the GNU General Public License v3+

Running benchmark (158051.4 PMKs/s)... |

Computed 158051.37 PMKs/s total.

#1: 'CAL++ Device #1 'ATI CYPRESS': 65559.6 PMKs/s (RTT 1.0)

#2: 'CAL++ Device #2 'ATI CYPRESS': 40905.2 PMKs/s (RTT 1.3)

#3: 'CAL++ Device #3 'ATI CYPRESS': 39883.5 PMKs/s (RTT 1.4)

#4: 'CAL++ Device #4 'ATI CYPRESS': 46954.3 PMKs/s (RTT 1.4)

Peak wattage was 658.

So... average wattage with one hd 5970 was 320, peak was 400, so lets take 360w.

$658 - 360 = 298 \approx 300$ W per card.

So altogether i would need $300 * 5 = 1500$ W

Running one card and system on seperate 650w, then i would need 1200W psu.

It looks like 1600W psu would be just great for this rig :)

But this measurements are... made by very improvised way.... so the real numbers will be known on friday when i got proper equipement

pomwtin - October 25, 2014, 12:02 pm

A smaller update today :)

I have came to misunderstanding with my mother about antenna roof-holder, but compromise was made and project can continue :D

The problem was she didnt like a idea of full-metal holder, so some wood must be used as well (it looks nicer ?)

Additional measures were taken and roof holder re-designed. The only problem is tah i have to wait for wooden pole (20x20x300 cm to arrive). Mor about this will be visible on pictures, as soon as it will be made :)

I also did encounter two problems with my graphic cards while stress testing (temperatures), which leaded to two mini projects ?

1st one: Fan making funny noises

Solution: Fan disassembly, cleaning and lubrication



2nd one: Fan regulator not working- max speed 30% readed by Ati software

Solution: External feeding with manual voltage regulator, currently set on 100% fan speed all the time (under heavy load with Furmark, max temperature was 60°, meanwhile on other "normal" cards, max temperature was 85°C)





I also measured wattage consupction, it is very near previous result: 295 W under pyrit benchmark.

To sum up:

Hardware is all set up and working, sensors still did not arive (for antenna), and roof holder needs to be finished.

Cant wait to finish it ?

PinkPanther - October 25, 2014, 12:38 pm

(Oct 25, 2014 12:02 PM)pomwtin Wrote: [\[CITE\]](#) A smaller update today :)

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To sum up:

Hardware is all set up and working, sensors still did not arrive (for antenna), and roof holder needs to be finished.

Cant wait to finish it ?

I like the external power for GPU fans. I hate when fans can't be easily controlled by software. ?

pomwtin - October 25, 2014, 1:53 pm

Pinkpanther i totally understand you.

Luckily under linux and windows, they can be controlled easely, but since it is unreliable for this one card, i have had to do this... 100% fan all time is better than fried card i think :D

Other four works normally :D

Mad76e - October 25, 2014, 2:38 pm

(Oct 25, 2014 12:02 PM)pomwtin Wrote: [\[CITE\]](#) ...
so my tip is...

Use your old 600w PSU to power the system + 1 HD5970

The rest you can power with a 1500w PSU. Doing that will give you some margin (4x300=1200W).. cos the effect does spike (lack of a better name) up to 360. and its better to have the margin to cower for this than to make your rig a bit unstable. (oh damn i want one of those cards :p)

Regarding the regulator thing.. I know that ppl want a silent rig, but its dangerous game to mod.. and your risking to make your rig unstable with it (overheat). However do not fear my dear apprentice (to much beer??).. Hashcat has a function to control fanspeed as it has a overheat treshhold aswell

Here you have an intresting link regarding fanspeed

http://hashcat.net/wiki/changing_fan_speed_of_ati_under_linux

<http://hashcat.net/forum/thread-692.html>

These other 2 i have memorized a long time ago

--gpu-temp-abort= 90

Abort session if GPU temperature reaches 90c

--gpu-temp-retain= 80

Try to retain GPU temperature at 80c

(Oct 25, 2014 12:02 PM)pomwtin Wrote: [\[CITE\]](#) 2nd one: Fan regulator not working- max speed 30% readed by Ati software

Solution: External feeding with manual voltage regulator, currently set on 100% fan speed all the time (under heavy load with Furmark, max temperature was 60°, meanwhile on other "normal" cards, max temperature was 85°C)

Oooh.. Yeah.. I did not read properly.. to much beer :/

pomwtin - October 25, 2014, 2:46 pm

thanks mad76e™, will do just that (1600w because i did not find 1500w one somewhere near me) :D

I think you misunderstood. I do not care about noise, the problem was that fan did not want to go over 30% - there is something wrong on graphic card "wiring plate" and i did not mannage to find what problem is, so i just made external feeding and fan will be allways on 100%.

For all the other cards automatic fan regulation works well :)

Thank you for commands and links, usefull and interesting read :)

I see that i still have a lot to learn about hashcat :)

Mad76e - October 25, 2014, 2:49 pm

(Oct 25, 2014 02:46 PM)pomwtin Wrote: [\[CITE\]](#) thanks mad76e™, will do just that (1600w because i did not find 1500w one somewhere near me) :D

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For all the other cards automatic fan regulation works well :)

Thank you for commands and links, usefull and interesting read :)

I see that i still have a lot to learn about hashcat :)

Yeah... To much to drink... Sorry! :p

PinkPanther - October 25, 2014, 2:55 pm

(Oct 25, 2014 02:38 PM)mad76e™ Wrote: [\[CITE\]](#) so my tip is...

Use your old 600w PSU to power the system + 1 HD5970

The rest you can power with a 1500w PSU. Doing that will give you some margin (4x300=1200W).. cos the effect does spike (lack of a better name) up to 360. and its better to have the margin to cower for this than to make your rig a bit unstable. (oh damn i want one of those cards :p)Although with dual PSUs you have to worry about backfeeding. The PSU powering the motherboard would be feeding power to the all PCI slots. Other GPUs that were meant to be powered only by the second GPU would be getting power from both. This could cause dangerous conditions in the regulators if PSU voltage weren't very similar, or worse yet, a ground situation that lets the magic smoke escape.

Quote:Hashcat has a function to control fanspeed as it has a overheat treshhold aswell Hashcat doesn't touch fan speed. That is all in the driver. Gpu abort only kills the hashcat process, and only if it can get a temperature reading. Having full control over fans is a must if you are using hashcat, since it can't control them.

Mad76e - October 25, 2014, 3:07 pm

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Hashcat doesn't touch fan speed. That is all in the driver. Gpu abort only kills the hashcat process, and only if it can get a temperature reading. Having full control over fans is a must if you are using hashcat, since it can't control them.

Well there's a workaround..

http://www.legitreviews.com/add2psu-daisy-chain-power-supply-adapter-review_1698 This does not put more power in the motherboard than one PSU. However we need to use this PSU strictly for those graphics cards..

[img]http://www.legitreviews.com/images/reviews/1698/add2psu-side.jpg[/img]

^^ Old link but the principle still works

Yeah, that's right, its all about the driver.. you can control some of it in "Catalyst center" but its a question of taste.. I like to controll that in hashcat cos im using that machine for other thing aswell

pomwtin - October 25, 2014, 3:36 pm

hehe mad76e™ cheers then ?

So if i understood correctly... Is this 2 to 1 PSU adapter solution to problem that Pinkpanther mentioned?

If not, how would it be possible to solve this? Maby 2+ kW PSU? (please tell that this is not the only option :P)

PinkPanther - October 25, 2014, 3:57 pm

(Oct 25, 2014 03:07 PM)mad76e™ Wrote: [\[CITE\]](#) Well there's a workaround..

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^^ Old link but the principle still works

Yeah, that's right, its all about the driver.. you can control some of it in "Catalyst center" but its a question of taste.. I like to controll that in hashcat cos im using that machine for other thing aswell

You can use an adapter, but it won't make a difference. There will still be a possibility to backfeed voltage through the PCI lines. The bottom card is unintentionally connected to 2 PSUs. This is why using 2 PSUs is a bad idea unless you know exactly what you're doing.

There are solutions but what you posted isn't them. ?

Mad76e - October 25, 2014, 4:03 pm

(Oct 25, 2014 03:57 PM)PinkPanther Wrote: [\[CITE\]](#) There are solutions but what you posted isn't them. ?

Ok i bite... Tell me more :) When i saw the pic i understood what you ment.. :p

pomwtin - October 25, 2014, 4:12 pm

(Oct 25, 2014 03:57 PM)PinkPanther Wrote: [\[CITE\]](#) There are solutions but what you posted isn't them. ?

Please, tell more :D
I would be greatfull

Mad76e - October 25, 2014, 4:17 pm

Pink, you mean something like this?

"" the auxillary power is not connected to the PCI-slot power. If you connect a second PSU to the aux inputs, then there is no risk of backfeed. ""

So 600w only for the harddrive and the motherboard. If i understand it correctly you need more power.. 1600w isnt enough to drive 5 cards @ 360w (only if you think you dont need more than 300w to each card

PinkPanther - October 25, 2014, 4:21 pm

(Oct 25, 2014 04:17 PM)mad76e™ Wrote: [\[CITE\]](#) Pink, you mean something like this?

Ha, I draw that for my litecointalk account. You dox me? ?

Mad76e - October 25, 2014, 4:40 pm

(Oct 25, 2014 04:21 PM)PinkPanther Wrote: [\[CITE\]](#) Ha, I draw that for my litecointalk account. You dox me? ?

Nope.. :)

However i found that pic @ bitcointalk ? However thanks for the info.. it may prevent me from damage my future motherboard..

PinkPanther - October 25, 2014, 4:52 pm

Yeah, I'm using USB risers that only have data lines and no power lines. The pci power comes from a seperate wiring harness built into the usb risers, that way you can get everything from the same PSU. The usb risers were like \$20 USD each and are plenty tough.

Bad

Good

Mad76e - October 26, 2014, 3:17 am

(Oct 25, 2014 04:52 PM)PinkPanther Wrote: [\[CITE\]](#) Yeah, I'm using USB risers that only have data lines and no power lines. The pci power comes from a seperate wiring harness built into the usb risers, that way you can get everything from the same PSU. The usb risers were like \$20 USD each and are plenty tough.

Thats interesting.. How many watts does each USB riser needs? below 500mW?

EDIT: Hmma.. To power all USB risers did you use an form av "adapter"/"5v Smartphone USB-charger" and a non powered USB hub to distrubute the power or did you use the PSU? <-- Just a crazy idea..

pomwtin - October 26, 2014, 3:47 am

(Oct 25, 2014 04:52 PM)PinkPanther Wrote: [\[CITE\]](#)

Good

So if i understand correctly:

A) 650W for motherboard only and one more powerfull for graphic cards

OR

B)

1) I have pcie risers with function to be externaly powered from 4 pin plug

2) i need to disable (cut) power cable from flat cable part and use 4 pin plug for powering it with same PSU , so graphic card will get power from one PSU only. Meanwhile i can still use my 650W for system and one graphic card, which will have pcie-riser which is not externaly powered

Is that correct? :)

And thanks for help, I really appreciate it ?

PinkPanther - October 26, 2014, 7:54 am

(Oct 26, 2014 03:47 AM)pomwtin Wrote: [\[CITE\]](#) So if i understand correctly:

A) 650W for motherboard only and one more powerfull for graphic cards

OR

B)

1) I have pcie risers with function to be externaly powered from 4 pin plug

2) i need to disable (cut) power cable from flat cable part and use 4 pin plug for powering it with same PSU , so graphic card will get power from one PSU only. Meanwhile i can still use my 650W for system and one graphic card, which will have pcie-riser which is not externaly powered

Is that correct? :)

And thanks for help, I really appreciate it ?

Yep. Some powered risers are pre-cut.

pomwtin - October 26, 2014, 10:37 am

Thank you for help :)

Will mod them tomorrow :D

PoLoW - October 26, 2014, 3:03 pm

Looks like a tight project OP , I was planning to do something like this but without a rotator to scan for AP's .

Hope you can finish this project soon so i can learn something from you :)

good luck mate

pomwtin - October 26, 2014, 3:37 pm

thank you for reply and good wishes :)

will do my best to get antenna up on roof before winter starts :)

If you will have antenna on high place, i reccomend at least left-right rotation, so you will cover more ground ;)

Stevensan - October 26, 2014, 3:57 pm

This is the best project that I have seen so far. Back in 2009 there were only WEP cracking tutorials

and a project like this <https://hackforums.net/showthread.php?tid=129642&highlight=project>

Mad76e - October 26, 2014, 4:03 pm

(Oct 26, 2014 03:57 PM)Stevensan Wrote: [\[CITE\]](#) This is the best project that I have seen so far. Back in 2009 there were only WEP cracking tutorials and a project like this <https://hackforums.net/showthread.php?tid=129642&highlight=project> Is that a bi-quad ? Missing some minor parts tho, but nothing serious..

Thats a nice build..

pomwtin - October 26, 2014, 4:04 pm

thank you Stevensan, i appreciate it :)
and thanks for this link, i havent found it before... looks like interesting read (i skimmed through it a bit, will read it soon), too bad he didnt finish it...

pomwtin - October 31, 2014, 12:43 pm

Smaller update today, maybe a little bigger tomorrow (i am having rough time with my free time... stuff on college are getting serious again ?)

So, a big wooden pole for rooftop holder arrived. I did not managed to finish working on it due to blessing of graves that was today :/

[\[img\]http://shrani.si/t/n/jC/1mcC42jM/img20141031163124.jpg](http://shrani.si/t/n/jC/1mcC42jM/img20141031163124.jpg)[\[img\]](#)

And since i have nothing new, big to show, i decided to show drawing of how should look like when finished:

Now, rooftop looks something like this:

[\[img\]http://shrani.si/t/2i/ll/3mfDRZsM/rooftop.jpg](http://shrani.si/t/2i/ll/3mfDRZsM/rooftop.jpg)[\[img\]](#)

And the plan is:

[\[img\]http://shrani.si/t/3r/5v/3wR9YwtK/rooftop-holder.jpg](http://shrani.si/t/3r/5v/3wR9YwtK/rooftop-holder.jpg)[\[img\]](#)

[\[img\]http://shrani.si/t/ll/n2/2LLTfOd5/rooftopholder2.jpg](http://shrani.si/t/ll/n2/2LLTfOd5/rooftopholder2.jpg)[\[img\]](#)

Antenna part made previously will be placed on top of holder ?

Druing the week i mannaged to modify pcie risers and today tests were made, and they work as they should :D

The trick is to cut 12V cables marked on pcie scheme with red and wire them to 12V 4 pin plug. Additional ground is not needed.

pcie scheme:

[\[img\]http://shrani.si/t/X/Sq/1UNpFVFm/1diyp0m.jpg](http://shrani.si/t/X/Sq/1UNpFVFm/1diyp0m.jpg)[\[img\]](#)

modified riser (do not mind black-tape protection... it will be replaced with proper one soon):

[\[img\]http://shrani.si/t/11/VB/BynVysk/img20141031192011.jpg](http://shrani.si/t/11/VB/BynVysk/img20141031192011.jpg)[\[img\]](#)

That is it for today... not much, but atleast it is moving on ? ?

Mad76e - November 1, 2014, 3:44 pm

(Oct 31, 2014 12:43 PM)pomwtin Wrote: [\[CITE\]](#) ...

Yeah... I hoped you would go with the USB powered Risers to avoid backfeeding. however modify it will also work. Need to ask if that mod is a permanent solution and how you did

[img]http://i01.i.aliimg.com/wsphoto/v2/1609801987_2/PCI-E-PCI-E-Express-1X-to-X16-Riser-Card-USB-3-0-Extender-Cable-with.jpg[/img]

pomwtin - November 2, 2014, 8:05 am

(Nov 1, 2014 03:44 PM)mad76e™ Wrote: [\[CITE\]](#) Yeah... I hoped you would go with the USB powered Risers to avoid backfeeding. however modify it will also work. Need to ask if that mod is a permanent solution and how you did

[picture]

I am not sure if i understood your post correctly, but i will try to answer it :)

PCIE risers were modified so all 12v lines, coming from motherboard are now wired directly to PSU- the same PSU which is powering graphic card on the other end (8+6 pin).

I researched it a bit and aperaturely nobody had any problems with such modification and my tests were sucessfully finished so this is my permanent solution.

I was thinking of USB powered too, but wanted to use what i already have ?

How it was done can be seen on pcie scheme and picture of modified riser i posted on previous post.

Simply wire all 12v to 4 pin plug :)

Another smaller update today ?

The big wooden pole was painted and now it is drying.

Also, rig construction was upgraded (click to enlarge):

[\[img\]http://shrani.si/t/B/GS/BvIwFYv/img20141102155432.jpg](http://shrani.si/t/B/GS/BvIwFYv/img20141102155432.jpg)[/img]

[\[img\]http://shrani.si/t/3U/jr/qA5VbFD/img20141102155439.jpg](http://shrani.si/t/3U/jr/qA5VbFD/img20141102155439.jpg)[/img]

And graphic card is mounted like so (click to enlarge):

[\[img\]http://shrani.si/t/1o/0/1OhrSZC6/img20141102153155.jpg](http://shrani.si/t/1o/0/1OhrSZC6/img20141102153155.jpg)[/img]

The back end is made from wood because i do not want graphic cards plastic parts to be scratched ?

I didnt make a picture of graphic card mounted, because paint is still fresh.

I did however make temperature test yesterday.

On full fan speed, the temperature of 3 graphic cards running pyrit was 60°C at room temperature 18°C. Which is good enough :D

Oh and there is about 3 cm space between each card.

And for antenna:

I got notice yesterday that i have to order sensors somewhere else as they did not mannaged to get them. Hopefully i will mannage to buy them this week.

Also blueprint of steel holders for antenna pole and wooden pole were made and send to manufacturer to prepare them, so i will just have to weld it together ?

Thats it for today :)

Mad76e - November 2, 2014, 11:38 am

(Nov 2, 2014 09:05 AM)pomwtin Wrote: [\[CITE\]](#) ...

You understood me good enough... I got my answer.. Did not read properly tho.. i need to stop fast reading stuff

Nice to see things moving along..

I need one of those cards.. Going to start saving money.. lets see if i can create something that generates money

Orded a couple of these last Monday from HongKong.. I hope they arrive sometime this week..

pomwtin - November 2, 2014, 2:20 pm

generates money... are you talking about mining? :)

Hehe i decided to give it a go too, if i will have to put antenna down during the winter and ill have no other things to crack :P

Or maby set up online cracking service?

Hmm... i like this adapter... looks like that there is place for two more graphic cards on my rig :D
But i think MB wont support 6th one :P

Hey if i saved enough (much of it goes for college), then almost anybody can.
You just have to be dedicated to the idea and not give up... sure you have to cut on some things, but it can be done :)

Mad76e - November 2, 2014, 2:27 pm

(Nov 2, 2014 03:20 PM)pomwtin Wrote: [\[CITE\]](#) generates money... are you talking about mining? :)

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Or maby set up online cracking service?

Hmm... i like this adapter... looks like that there is place for two more graphic cards on my rig :D
But i think MB wont support 6th one :P

Hey if i saved enough (much of it goes for college), then almost anybody can.
You just have to be dedicated to the idea and not give up... sure you have to cut on some things, but it can be done :)

Well Its my bloody book.. I hope to get some donated \$ when its done. so im hoping it will generate some \$

As long as you have power to provide, its worth a try.. Borrow a card from a friend to test before you buy one more :D

pomwtin - November 2, 2014, 2:55 pm

will do, but first i have to set this existing grid up correctly.

after making pyrit use all cards display starts multiplying by each boot i make... i solved this by deleting grub and installing xcf (or something like that- not sure about the name)... things on this gui worked ok, but i do not like it... so i tried to reinstall grub but failed somewhere in the process... so this is my homework for next weekend :D

about your book... you proved your knowledge here on hf... almost in every thread in wireless section i look into, there is your post with answer :)
considering that, i think that you will raise some money with it :D

cant wait for you to publish it... i will be glad to donate something for it :)

pomwtin - November 7, 2014, 1:35 pm

Things are moving forward ?

After coming home from school, I got my prepared sheet metal and welded them up, resulting in holders for wooden pole (lower part of antenna holder).

(click to enlarge):

[\[img\]http://shrani.si/t/o/FA/41Pt2cpj/img20141107213219.jpg\[/img\]](http://shrani.si/t/o/FA/41Pt2cpj/img20141107213219.jpg)

plate for holder, which will be placed on this wooden pole and the one which will be on the top (upper corner of triangle) are also prepared- just need to make holes in triangle one :)

(click to enlarge):

[\[img\]http://shrani.si/t/9/GA/bZeElie/img20141107213320.jpg\[/img\]](http://shrani.si/t/9/GA/bZeElie/img20141107213320.jpg)

After this, i remembered that paint on wooden part of grid is dry, and just had to montage graphics cards on it and take a picture :P
Do you like it?

(click to enlarge):

[\[img\]http://shrani.si/t/K/12Z/1SNDox1t/img20141107215143.jpg\[/img\]](http://shrani.si/t/K/12Z/1SNDox1t/img20141107215143.jpg)

[\[img\]http://shrani.si/t/2O/DE/47J2WGhe/img20141107215128.jpg\[/img\]](http://shrani.si/t/2O/DE/47J2WGhe/img20141107215128.jpg)

Well.. you may notice that this post is a bit wierdly written (or is it just me), that is due to getting high on burning zinc while welding... it indeed is funny feeling but i would reccomend welding first and then galvanisation (i do not know why they have galvanized it right after cutting ???)
And it was something to see too ?

First, after green fire died, this thing was left behind it

(click to enlarge):

[\[img\]http://shrani.si/t/v/E8/4EHawoum/img20141107200859.jpg\[/img\]](http://shrani.si/t/v/E8/4EHawoum/img20141107200859.jpg)

And when i tried to clean it off, it started to snow in my garage ?

(click to enlarge):

[\[img\]http://shrani.si/t/B/Rb/2E8Aw2s/img20141107200843.jpg\[/img\]](http://shrani.si/t/B/Rb/2E8Aw2s/img20141107200843.jpg)

Alltogether resulting in terrible headache ?

Ok enough for now... i ll take a painkiller and go to sleep and tomorrow after finishing whole holder, if weather will let me (heavy rain today) antenna holder will be mounted on roof.
But only antenna holder- still didnt get sensors i ordered ?

Regards ?

Kristof - November 7, 2014, 1:47 pm

This is crazy project so far!! man you got my respect just out of curiosity what do you do for a living?

pomwtin - November 7, 2014, 2:22 pm

(Nov 7, 2014 02:47 PM)Kristof Wrote: [\[CITE\]](#) This is crazy project so far!! man you got my respect just out of curiosity what do you do for a living?

Thank you!

I am still student (Faculty of mechanical engineering) ?

Kristof - November 7, 2014, 10:14 pm

(Nov 7, 2014 03:22 PM)pomwtin Wrote: [\[CITE\]](#) Thank you!

I am still student (Faculty of mechanical engineering) ?
thats cool man keep up the great work! thanks for taking the time to make this and posting all the pics. As soon as I have enough money I plan on setting up a hash cracker like the one ur making.

Mad76e - November 8, 2014, 12:36 am

(Nov 7, 2014 03:22 PM)pomwtin Wrote: [\[CITE\]](#) ...

Looking good

However you need to watch out for those toxic gases. It's not good to weild in galvanized matrial

Snowing inside :D why do i think "atomic winter" ;)

Offtopic; do you have snow outside or is it only in the garage??

pomwtin - November 8, 2014, 4:38 am

(Nov 8, 2014 01:36 AM)mad76e™ Wrote: [\[CITE\]](#) Looking good

However you need to watch out for those toxic gases. It's not good to weild in galvanized matrial

Snowing inside :D why do i think "atomic winter" ;)

Offtopic; do you have snow outside or is it only in the garage??
yes, i learned my lession... keep away from the fumes ?

the snow actually was only in garage (coming from white stuff in picture which was left behind welding) ?

ok time to go to work... will post update later :D

As promised, another update ?

Due to complications around holders and bad weather, holders aren't mounted yet, but they are finished ?

[\[img\]http://shrani.si/t/1e/UJ/4Wpvmv0U0/img20141108223555.jpg\[/img\]](http://shrani.si/t/1e/UJ/4Wpvmv0U0/img20141108223555.jpg)
[\[img\]http://shrani.si/t/1N/NO/VrH5vpF/img20141108223606.jpg\[/img\]](http://shrani.si/t/1N/NO/VrH5vpF/img20141108223606.jpg)
[\[img\]http://shrani.si/t/3S/bS/fpDo9qd/img20141108223621.jpg\[/img\]](http://shrani.si/t/3S/bS/fpDo9qd/img20141108223621.jpg)

Right now second color layer was put on, so tomorrow they will be ready to mount (hopefully i will manage to do it)

They may seem simple (and they are), but catching proper geometry was a bit tricky and that took me a lot of time as additional preparations were needed (complications mentioned above ?)

If someone do not get idea what this two parts are for, here is another picture (and in background there is wooden pole waiting to be mounted) ?

[\[img\]http://shrani.si/t/2s/3C/lqmm60W/img20141108224152.jpg\[/img\]](http://shrani.si/t/2s/3C/lqmm60W/img20141108224152.jpg)

Not as much as planned, but better than nothing ?

pomwtin - November 16, 2014, 6:44 am
hy ?

No, project is not abandoned as it may seem ?

Small update today ?

Due to lack of free time because my exam this thursday things are going a bit slower ?

Well in break from studying i finally managed to mount wooden pole.

(click to enlarge)

[\[img\]http://shrani.si/t/1/3l/LyW2hDK/img20141116144335.jpg\[/img\]](http://shrani.si/t/1/3l/LyW2hDK/img20141116144335.jpg)
[\[img\]http://shrani.si/t/1N/jk/2696o7Ft/img20141116143714.jpg\[/img\]](http://shrani.si/t/1N/jk/2696o7Ft/img20141116143714.jpg)

Now holders need to be mounted like so:

[\[img\]http://shrani.si/t/1L/8Y/3fY8gDfa/novedited162014483.jpg\[/img\]](http://shrani.si/t/1L/8Y/3fY8gDfa/novedited162014483.jpg)

But first, i will need to build scaffold on balcony because it is a long way down (see picture below) and i do not feel like working on such high places without protection.

[\[img\]http://shrani.si/t/3d/Yu/1lxn6OJe/img20141116130735.jpg\[/img\]](http://shrani.si/t/3d/Yu/1lxn6OJe/img20141116130735.jpg)

This may make things go even slower, but safe first ! ?

Unfortunately that is all for this weekend, now i have to go back behind the books ?
Just wanted to let you know that things are moving forward ?

Mad76e - November 16, 2014, 7:57 am
good to hear.. take it in your own time :)

Update ?

I finally found time to start setting up position sensors ?

So the idea is:

When dish comes to barrier (antenna pole) while rotating up or down, it stops to prevent damage. Then warning light show up.

Dish is then unable to rotate till green button is pressed, and naturally direction of rotation changed. Also, the second light will show up when antenna will be 90° to antenna pole.

More accurately, circuit blueprint (with nonstandard symbols, click to enlarge):

[\[img\]http://shrani.si/t/1L/Aa/1MH8KrQm/img20141123001916.jpg\[/img\]](http://shrani.si/t/1L/Aa/1MH8KrQm/img20141123001916.jpg)

Legend:

S1,S2,S3- position sensor

S4- Position block bypass (green button)

L1,L2- light

Wiring (click to enlarge):

[\[img\]http://shrani.si/t/2v/T9/YpXdv0R/img20141122184837.jpg\[/img\]](http://shrani.si/t/2v/T9/YpXdv0R/img20141122184837.jpg)

And here is video of circuit testing, with only one position sensor and rotor:

[Video: <https://www.youtube.com/watch?v=7y4qRPITqhM>]

After confirming it works as supposed, sensors were a bit upgraded and mounted on antenna (click to enlarge):

[\[img\]http://shrani.si/t/3K/g1/1RNFCEHF/img20141122214359.jpg\[/img\]](http://shrani.si/t/3K/g1/1RNFCEHF/img20141122214359.jpg)

[\[img\]http://shrani.si/t/1l/Aw/sSlwAhv/img20141122215033.jpg\[/img\]](http://shrani.si/t/1l/Aw/sSlwAhv/img20141122215033.jpg)

[\[img\]http://shrani.si/t/y/gr/2V4C6RSc/img20141122215014.jpg\[/img\]](http://shrani.si/t/y/gr/2V4C6RSc/img20141122215014.jpg)

[\[img\]http://shrani.si/t/1s/ZT/tMShe5q/img2014112225050.jpg\[/img\]](http://shrani.si/t/1s/ZT/tMShe5q/img2014112225050.jpg)

If all goes by plans, tomorrow i will test position sensors on antenna ?

Another update ?

Actually it is not much.. but it is something... ?

Sensor wiring was organised to more compact state (click to enlarge):

[\[img\]http://shrani.si/t/3b/ib/3kupmbBB/img20141123195809.jpg\[/img\]](http://shrani.si/t/3b/ib/3kupmbBB/img20141123195809.jpg)

And sensor was tested on antenna.

I did not managed to test both at once, because i ran out of needed materials ?

Anyway, here is video ?

[Video: <https://www.youtube.com/watch?v=4HQtpYdh86Q>]

This is all for this weekend, maby something new next one ?

Jooping - November 24, 2014, 7:24 am

Wow. As a fellow mechanical enigneer, I am amazed at your ingenuity. This has inspired me to learn a lot more about antennas and to brush up on welding. Nice project buddy.

pomwtin - November 24, 2014, 2:08 pm

(Nov 24, 2014 08:24 AM)Jooping Wrote: [\[CITE\]](#) Wow. As a fellow mechanical enigneer, I am amazed at your ingenuity. This has inspired me to learn a lot more about antennas and to brush up on welding. Nice project buddy.

Thanks :D

Nice to see another mech. engineer here ?

pomwtin - December 14, 2014, 1:00 pm

update ?

(it was about time...)

Due to bad weather i did not spend a lot of time on antenna (it actually just have to be mounted on roof) but i did on cracking rig.

Sadly, i did not achieved (yet!) what i expected.

Problem occured due to openCL supporting only 8 and not 10 gpus as i taught before ???.

Since HD 5970 are dual-gpu, current server is build out of 4 HD 5970 graphic cards.

But i did found a solution for 5th card- i have enough spare parts to build another platform and since there are ways of hashcat distributed computing, there is option to add this graphic card to other four.

Specifications:

psu: LEPA 1600w 80+

cpu: AMD Phenom II X4 955 BE

ram: 4gb ddr3

ssd: 120 gb

gpu: 4 (for now!!) x HD 5970

os: ubuntu server 12.04

catalyst 14.9

hashcat 1.31

I did not mannaged to make propper benchmark as i finnished setting it up half an hour ago and now i already am on bus to my college place :/

But i did mannaged to run wpa2 handshake mask attack to check out speed.

Here are results:

PHP Code

<?php

Speed.GPU.#1...: 79283 H/s

Speed.GPU.#2...: 79650 H/s

Speed.GPU.#3...: 79652 H/s
Speed.GPU.#4...: 79647 H/s
Speed.GPU.#5...: 79660 H/s
Speed.GPU.#6...: 79699 H/s
Speed.GPU.#7...: 79693 H/s
Speed.GPU.#8...: 79656 H/s
Speed.GPU.#*...: 636.9 kH/s

so a total of 636900 keys/second for wpa2.
Compared to pyrit, this is 2.4 times faster.

The plan is to make cracking server, available for HF users... but i first have to mannage out how ?

And of course, some pictures (click to enlarge):

[\[img\]http://shrani.si/t/k/x6/12aN1Uds/img20141214202555.jpg\[/img\]](http://shrani.si/t/k/x6/12aN1Uds/img20141214202555.jpg)
[\[img\]http://shrani.si/t/2Z/qT/4yOpKqgw/img20141214202614.jpg\[/img\]](http://shrani.si/t/2Z/qT/4yOpKqgw/img20141214202614.jpg)

Do not worry, on right picture is just temporary setup :)

expect another update next weekend ?

Kristof - December 14, 2014, 1:36 pm

Nice set up how much did each GPU cost ya? Looks expensive I'm actually saving up for that my self

pomwtin - December 14, 2014, 1:44 pm

Thanks :)

Each one was around 100\$ (got discount as i both them together), plus a little for new termal pads etc...

Each card was serviced before use (fan lubrication, termal pads and cleaning)

pomwtin - December 25, 2014, 12:53 pm

I decided to change a few things regarding protection system.

Whole wiring was simplified and re-made (function is the same)+ a bit bigger box was used.
I added additional weatherproof base box to antenna itself, for wires to be mounted more nicely, allowing two main 3 core wires smoothly traveling while antenna is rotating.
I also tested whole wiring and wire behavior meanwhile rotation, and must say that i am satisfied ?
Two 3 core wires will travel down to control panel through antenna pole, as seen on picture.
I am planning the same for antenna cable, if test will be OK ?

Another thing changed is warning light behavior- When dish hits obstacle while lowering, light will turn off, and if it (counterweight) hits obstacle while dish is rising, it will start shining more brightly and in both cases stop till direction of rotation is changed.

When there is no obstacle, light will shine less brightly.

No obstacle:

[\[img\]http://shrani.si/t/16/ul/2LrOTETu/img20141225200629.jpg\[/img\]](http://shrani.si/t/16/ul/2LrOTETu/img20141225200629.jpg)

Obstacle while down/up:

[\[img\]http://shrani.si/t/7/cu/3PVknPK1/img20141225200649.jpg\[/img\]](http://shrani.si/t/7/cu/3PVknPK1/img20141225200649.jpg)
[\[img\]http://shrani.si/t/2W/4N/3F2IQA1E/img20141225200612.jpg\[/img\]](http://shrani.si/t/2W/4N/3F2IQA1E/img20141225200612.jpg)

Pictures of wires installation:

[\[img\]http://shrani.si/t/41/NS/4Ilz3XSH/img20141225200808.jpg\[/img\]](http://shrani.si/t/41/NS/4Ilz3XSH/img20141225200808.jpg)

[\[img\]http://shrani.si/t/2f/GH/4Lo51SIB/img20141225201000.jpg\[/img\]](http://shrani.si/t/2f/GH/4Lo51SIB/img20141225201000.jpg)

[\[img\]http://shrani.si/t/3u/MR/25tn5hUB/img20141225201044.jpg\[/img\]](http://shrani.si/t/3u/MR/25tn5hUB/img20141225201044.jpg)

[\[img\]http://shrani.si/t/9/qD/4mttdwZH/img20141225200925.jpg\[/img\]](http://shrani.si/t/9/qD/4mttdwZH/img20141225200925.jpg)

And to all merry Christmas and happy holidays.

pomwtin - January 22, 2015, 11:10 am

Update.

I was i will be away for a while, due to graduation this year- i do not have almost any free time ?

However, my diploma work improved this antenna project a bit.

Yesterday my mentor gave me a present:

[\[img\]http://shrani.si/t/2w/a8/1t5xTwHZ/img20150122190140.jpg\[/img\]](http://shrani.si/t/2w/a8/1t5xTwHZ/img20150122190140.jpg)

(Click to enlarge)

He told me that laboratory does not need this anymore, as it is from someone elses old diploma work and because it is "chinese piece of equipment" i can have it.

It is 2400Hz transmitting analog signal amplifier and receiving a. signal noise filter and amplifier.

To test its effect, 3 tests were made:

I set up wireless AP (essid: strengthtest@pomwtin) on my mobile phone and run airodump on my laptop.

Phone was on one side of my house and laptop on another.

I tried to place antenna on same position every time and no other objects were moved during time of testing.

Both wireless cards were set to work at 20 dBm.

Both wireless cards used 5 dBi antenna, which comes with alfa cards.

Connection wireless_card-amplifier is through cheap coaxial cable ca 22cm in length.

Test 1) Signal strength without using amplifier

Setup:

[\[img\]http://shrani.si/t/3g/JJ/3HsLiVuG/1.jpg\[/img\]](http://shrani.si/t/3g/JJ/3HsLiVuG/1.jpg)

(Click to enlarge)

Result: Airodump showed average PWR of -55 dB.

[\[img\]http://shrani.si/t/1t/xk/3Mk2Y8hL/placement-1.jpg\[/img\]](http://shrani.si/t/1t/xk/3Mk2Y8hL/placement-1.jpg)

(Click to enlarge)

Test 2) Signal strength with amplifier for signal transmitting from mobile phone AP

Setup:

[\[img\]http://shrani.si/t/3j/fS/1Rdyu0ZP/2.jpg\[/img\]](http://shrani.si/t/3j/fS/1Rdyu0ZP/2.jpg)

(Click to enlarge)

Result: Airodump showed average PWR of -37 dB

[\[img\]http://shrani.si/t/1S/k4/4cKFZF66/placement-2.jpg\[/img\]](http://shrani.si/t/1S/k4/4cKFZF66/placement-2.jpg)

(Click to enlarge)

Test 3) Signal strength with noise filtering and amplifiing for receiving signal.

[\[img\]http://shrani.si/t/2W/Fw/1xPgSy4y/3.jpg\[/img\]](http://shrani.si/t/2W/Fw/1xPgSy4y/3.jpg)

(Click to enlarge)

Result: Airodump showed average PWR of -43 dB

[\[img\]http://shrani.si/t/1/2U/2PxZfilW/placement-3.jpg\[/img\]](http://shrani.si/t/1/2U/2PxZfilW/placement-3.jpg)

(Click to enlarge)

From results, it can be seen that transmitting signal is boosted for average of 18 dB, and receiving signal is boosted for average of 12 dB.

Considering this, amplifier have ca 38 dBm output (20+18), which is 6,3 W.

Due to wattage not being full number or near full number i decided to measure its power on wiring, it came up with 8 W of power, which is 39 dBm.

Nice gift, what else can i say. It will be integrated into this project ?

I also got LMR 400 for my antenna grid, but there simply is no time for it right now.

Project is still active, but progress is very slow due to more important stuff

PinkPanther - January 22, 2015, 12:26 pm

Interesting Pomwtin! I have an alfa 2 watt amp with pre-amp for receive boost. I'll probably make a post like yours detailing RXQ. Good luck with graduation. ?

FRANKIE - January 22, 2015, 12:28 pm

God damn this is cool. I don't have the resources to make something like this nor the welding skills but thanks for sharing.

pomwtin - January 22, 2015, 2:03 pm

(Jan 22, 2015 01:26 PM)PinkPanther Wrote: [\[CITE\]](#) Interesting Pomwtin! I have an alfa 2 watt amp with pre-amp for receive boost. I'll probably make a post like yours detailing RXQ. Good luck with graduation. ?

Please do, it would be interesting to see its effect :)

Thank you! ?

(Jan 22, 2015 01:28 PM)NOSCRIPT Wrote: [\[CITE\]](#) God damn this is cool. I don't have the resources to make something like this nor the welding skills but thanks for sharing.Thanks :)

All you need is interest, then everything else comes by itself. You just have to start somewhere ;)

Rogers Communications - January 22, 2015, 7:16 pm

I tried one of those receiver amps.. all it did was increase the noise as with most pre-amps!

pomwtin - January 23, 2015, 7:02 am

(Jan 22, 2015 08:16 PM)wpginterceptor Wrote: [\[CITE\]](#) I tried one of those receiver amps.. all it did was increase the noise as with most pre-amps!

If you have access to narrow-band filters for this frequency, and still have ampfilter, can you try to use them combined?

Ampfilter with no filter is a bit useless, as it amplifies noise too

Pow3r - January 23, 2015, 1:24 pm

What sort of range are you hoping to achieve with this OP? Very cool project by the way!

pomwtin - January 23, 2015, 2:43 pm

(Jan 23, 2015 02:24 PM)Pow3r Wrote: [\[CITE\]](#) What sort of range are you hoping to achieve with this OP? Very cool project by the way!Thanks :)

Goal is to cover whole village i live in, that's about 3 km radius.

If this will be achieved, i will try to go further :)

Now with this ampfilter, theoretical distance would be over 50km, but that is too much i think, i think i fucked up calculation... i will repeat it tomorrow :)

Edit: I repeated calculation and it seems to be correct

akamerge - February 13, 2015, 1:32 pm

omg i believe i got a lot of work to do
try 1 million

after i see your computer like this ,,if you tell me sit i will sit

pomwtin - February 19, 2015, 3:08 pm

Update!

Today antenna cable was tested and i was disappointed.

Calculated loss was 2.2 db for 5m of cable which is insane... With seller help we figured out it was bad cable connector fault and replacement cable is already on its way ?

Since plan for setting antenna up on the roof failed for today, I had time for my rig :)

With some over and under clocking i managed to hit 800 kh/s for wpa.

3 hour hashcat run was successful, but this still is not enough to say for sure if setup is stable or not-tomorrow 24h test will begin.

previous speed was ca 636 kh/s, so it is 25% improvement with almost the same temperatures (memory was underclocked and memory voltage lowered).

PHP Code

```
<?php
```

```
Speed.GPU.#1...: 100.4 kH/s
Speed.GPU.#2...: 100.4 kH/s
Speed.GPU.#3...: 100.4 kH/s
Speed.GPU.#4...: 100.4 kH/s
Speed.GPU.#5...: 100.3 kH/s
Speed.GPU.#6...: 100.4 kH/s
Speed.GPU.#7...: 100.4 kH/s
Speed.GPU.#8...: 100.4 kH/s
Speed.GPU.#*...: 803.1 kH/s
Recovered.....: 0/1 (0.00%) Digests, 0/1 (0.00%) Salts
```

Progress.....: 1899022400/1000000 (18.99%)
Skipped.....: 0/18022400 (0.00%)
Rejected.....: 0/18022400 (0.00%)
Restore.Point.: 1882843200/1000000 (18.99%)
HWMon.GPU.#1...: 99% Util, 78c Temp, N/A Fan
HWMon.GPU.#2...: 99% Util, 71c Temp, N/A Fan
HWMon.GPU.#3...: 99% Util, 73c Temp, N/A Fan
HWMon.GPU.#4...: 99% Util, 68c Temp, N/A Fan
HWMon.GPU.#5...: 99% Util, 69c Temp, 85% Fan
HWMon.GPU.#6...: 99% Util, 72c Temp, 85% Fan
HWMon.GPU.#7...: 99% Util, 69c Temp, 84% Fan
HWMon.GPU.#8...: 99% Util, 70c Temp, 85% Fan

Hash cracking service (free and also paid) is one step closer ?

Hopefully, antenna will be on top of the roof soon.

?

Disziswhoiam - February 19, 2015, 4:49 pm

This is really nice, great job for real. Need to see more posts like this!

ziggycat - February 20, 2015, 8:18 am

(Feb 19, 2015 04:08 PM)pomwtin Wrote: [\[CITE\]](#) Hash cracking service (free and also paid) is one step closer ?

?

^this

I would be interested in your paid for services with the numbers you are hitting

What cards are you using ?

pomwtin - February 20, 2015, 1:43 pm

(Feb 20, 2015 09:18 AM)ziggycat Wrote: [\[CITE\]](#) ^this

I would be interested in your paid for services with the numbers you are hitting

What cards are you using ?

For now I am using overclocked HD5970, 8 GPUs in total.

When I manage to get system stable I will present what free package contains, paid one will of course be 100% flexible to costumers wishes

ziggycat - February 21, 2015, 2:28 am

excellent mate - not so interested in the free service but definitely the paid services for sky and virginmedia in the uk it's 26^8 upper for sky / lower for virginmedia. *up to 3 days to run through the keyspace on your rig @800k .

have a think about prices.

pomwtin - March 2, 2015, 12:25 pm

(Feb 21, 2015 03:28 AM)ziggycat Wrote: [\[CITE\]](#) excellent mate - not so interested in the free service but definitely the paid services for sky and virginmedia in the uk it's 26^8 upper for sky / lower for

virginmedia. *up to 3 days to run through the keyspace on your rig @800k .

have a think about prices.

Of course, but i can not tell yet- I am still optimizing it for minimal power consumption (I managed to get it to 1000 W average under full-load with oclHashcat, but stability was not tested yet with this GPU BIOS).

Meanwhile, i taught of modification (besides clock/wattage settings) which dropped GPU temperatures for 7°C on each core, and average of 10°C on VRM:

[\[img\]http://shrani.si/t/2i/EF/Ew1zLwp/img20150228190633.jpg\[/img\]](http://shrani.si/t/2i/EF/Ew1zLwp/img20150228190633.jpg)

[\[img\]http://shrani.si/t/C/12n/4m4Pt9ea/1/img20150228190625.jpg\[/img\]](http://shrani.si/t/C/12n/4m4Pt9ea/1/img20150228190625.jpg)

[\[img\]http://shrani.si/t/B/5o/3KBBO7Et/img20150228190620.jpg\[/img\]](http://shrani.si/t/B/5o/3KBBO7Et/img20150228190620.jpg)

Result is less or almost no turbulence at exit point and of course faster heat disposal.
It may look a bit wierd, but it is quite effective regarding cooling

Thats it for now... school is simply taking me too much time ?

pomwtin - March 5, 2015, 8:07 am

Yes! Another shippement finnaly arrived, happy as radio:

[\[img\]http://shrani.si/t/2z/19/1f6PN553/img20150305165009.jpg\[/img\]](http://shrani.si/t/2z/19/1f6PN553/img20150305165009.jpg)

[\[img\]http://shrani.si/t/1P/PC/4EaGXfKS/img20150305164816.jpg\[/img\]](http://shrani.si/t/1P/PC/4EaGXfKS/img20150305164816.jpg)

Soon to be 1.5M k/s WPA cracker ?
And now... service time ?

PinkPanther - March 5, 2015, 8:14 am

(Mar 5, 2015 09:07 AM)pomwtin Wrote: [\[CITE\]](#) Yes! Another shippement finnaly arrived, happy as radio:

[\[img\]http://shrani.si/t/2z/19/1f6PN553/img20150305165009.jpg\[/img\]](http://shrani.si/t/2z/19/1f6PN553/img20150305165009.jpg)

[\[img\]http://shrani.si/t/1P/PC/4EaGXfKS/img20150305164816.jpg\[/img\]](http://shrani.si/t/1P/PC/4EaGXfKS/img20150305164816.jpg)

Soon to be 1.5M k/s WPA cracker ?
And now... service time ?
Which motherboard are you running them all on?

pomwtin - March 5, 2015, 8:19 am

Two motherboards actually- two systems

Since openCL supports max 8 GPU cores i will be using distributed cracking as i did not managed to set up VCL properly

Fogz - March 5, 2015, 9:01 am

(Mar 5, 2015 09:19 AM)pomwtin Wrote: [\[CITE\]](#) Two motherboards actually- two systems

Since openCL supports max 8 GPU cores i will be using distributed cracking as i did not managed to set up VCL properly

This cracking set up is exactly what im trying to build currently, 1.5M is huge lol props. +extremely jealous of your rotating antenna

HF-India - March 6, 2015, 12:08 pm

could you pls post some stats what you are gaining from that monstrous antenna + antenna loss etc.

Also would be nice to know stats/screenshots of power levels of APs with this monstrous Antenna.

I also have modified my vehicle its actually SUV type and is my main car (day by day usage) so I have to use some other way so as to not be pointed out. eg: I've a luggage rack above my car which is actually an arrangement of 4-sector antennas in 4 directions horizontally placed.
also i found that during warddriving having too power full antenna becomes useless.

After a lot of experimenting I came to realization it would be best if we use four antenna and divide evenly the channels 1- 13 by 4.
4 is also the limit of MIMO.

pomwtin - March 7, 2015, 11:40 am

(Mar 5, 2015 10:01 AM)Fogz Wrote: [\[CITE\]](#) This cracking set up is exactly what im trying to build currently, 1.5M is huge lol props. +extremely jealous of your rotating antennaThanks :)
You can allways build your own ;)

(Mar 6, 2015 01:08 PM)HF-India Wrote: [\[CITE\]](#) could you pls post some stats what you are gaining from that monstrous antenna + antenna loss etc.

Also would be nice to know stats/screenshots of power levels of APs with this monstrous Antenna.

I also have modified my vehicle its actually SUV type and is my main car (day by day usage) so I have to use some other way so as to not be pointed out. eg: I've a luggage rack above my car which is actually an arrangement of 4-sector antennas in 4 directions horizontally placed.
also i found that during warddriving having too power full antenna becomes useless.

After a lot of experimenting I came to realization it would be best if we use four antenna and divide evenly the channels 1- 13 by 4.

4 is also the limit of MIMO.

Will do detailed test when i put it on roof.

As far as i tested it, gain VS omni 5 dbi antena is 22 dbi.

While warddriving it is best to lower your transmitting power to minimum- better reception
Can you post a pic of "luggage rack"? Sounds very interesting :D

z8sr2dx024 - March 29, 2015, 4:11 pm

what about on a xbox 360 controller, i actually remember having a booster with an adapter.

pomwtin - March 30, 2015, 9:43 am

Sory, i am not familiar with xbox 360 controller.

It could have reception filter and amplifier, but not transmitting- device is in close human contact, so some health standards have to be taken into account... but this is just my opinion.

It would be interesting to make some tests on it, if amplifier could be somehow isolated from controller :)

z8sr2dx024 - March 30, 2015, 10:22 am

(Mar 30, 2015 09:43 AM)pomwtin Wrote: [\[CITE\]](#) Sory, i am not familiar with xbox 360 controller.

It could have reception filter and amplifier, but not transmitting- device is in close human contact, so some health standards have to be taken into account... but this is just my opinion.

It would be interesting to make some tests on it, if amplifier could be somehow isolated from controller :)

That would be awesome, i was trying to make a RC card controlled with the xbox 360 controller.

Just needed to boost the signal for a distance. Maybe i can go another way about it.

pomwtin - March 30, 2015, 10:27 am

Oh i think i understood you wrong... you want to amplify signal transmitted from controller?

If so all you would need to do is replace its antenna with proper cable wich will then go to amplifier.
Of course TX power output from controler would have to be measured first, as amplifiers have input range, which must be taken into account.

roleeswagger - March 30, 2015, 10:49 am

Hey cool project..i always wanted to make a big wifi antenna.. i have a question: can i use the TV satellite dish --->coax cable--->(adapter?)-->wifi card?

pomwtin - March 31, 2015, 1:41 am

You can use any dish as it is just reflector- just make sure that "feed horn" is in place

Mad76e - May 9, 2015, 9:32 am

(Mar 31, 2015 01:41 AM)pomwtin Wrote: [\[CITE\]](#) You can use any dish as it is just reflector- just make sure that "feed horn" is in placeEyy. Im back.

Any News

Really missed you guys

pomwtin - May 9, 2015, 12:45 pm

(May 9, 2015 09:32 AM)mad76e™ Wrote: [\[CITE\]](#) Eyy. Im back.

Any News

I am very glad to see that you are back ?

I thought that you left HF for good...

There are new plans, but not much new to show (yet!)... I needed money for some other stuff and have to wayt till 20th of this month to proceed with this project... and then some weeks more to get stuff i will order then ?.

Since antenna still is not on top of the roof I opened up rotator controller and figured out how to controll it with arduino which was lent from frend of mine.

It is simple AC motor, which is a bit of dissapointment, as now i will need another 2 limit switches, which will take some degrees from full possible ground coverage in horizontal direction.

I decided for this to save some space (rotator controllers were pretty big) and because of autocorrection option, which seems cool :P

So yes... to sum up: waiting to be able to order aduino+ 16channel relay switches and some other stuff, and then project will continue :D

zerocool - May 10, 2015, 12:06 am

(Mar 5, 2015 09:07 AM)pomwtin Wrote: [\[CITE\]](#) Yes! Another shippement finnaly arrived, happy as radio:

[\[img\]http://shrani.si/t/2z/19/1f6PN553/img20150305165009.jpg\[/img\]](http://shrani.si/t/2z/19/1f6PN553/img20150305165009.jpg)
[\[img\]http://shrani.si/t/1P/PC/4EaGXfKS/img20150305164816.jpg\[/img\]](http://shrani.si/t/1P/PC/4EaGXfKS/img20150305164816.jpg)

Soon to be 1.5M k/s WPA cracker ?
And now... service time ?

How's the service coming along.
Some nice equipment there.

pomwtin - May 10, 2015, 4:28 am

Sadly, same as antenna... It is on hold.

Currently only 800 kh/s server is up and website and script for automatic serving have yet to be finished- i am graduating this year and do not have enough time to work on my projects... It really sucks ass :(

But i did manage to get sweet domain name for this service which was not occupied by domain resellers :)

pomwtin - June 6, 2015, 1:59 pm

Finally had some time to work on this project again :)

I got arduino and modules i ordered, and original antenna rotor was fully taken apart:

[\[img\]http://shrani.si/t/3j/10G/1gHLSp6H/img20150606215220.jpg\[/img\]](http://shrani.si/t/3j/10G/1gHLSp6H/img20150606215220.jpg)
[\[img\]http://shrani.si/t/Q/Qj/2G03lm73/img20150606215305.jpg\[/img\]](http://shrani.si/t/Q/Qj/2G03lm73/img20150606215305.jpg)

After that, arduino code for rotor and safety switches was written, and another bash script for real-time keyboard control, which will be later upgraded with function for automatic best signal search.

Demonstration of keyboard control:

[Video: https://www.youtube.com/watch?v=O6PF_mskcTE]

Empty relay sets belong to safety switches which were not needed for this demo.

Its not much, but is an update :)

Just few more exams and I'll finally have time to put it up on the roof ?

Mad76e - June 25, 2015, 1:05 am

I guess you protected it against moisture and rain, what kind of cable are you using between the roof and the computer, and do you use amplifier

pomwtin - June 25, 2015, 12:59 pm

Components are weatherproof, yes ?

Cable is standard LMR-400-DB, which is stated as waterproof.
More info can be found [here](#)

N connector thread will be protected with silicon-like substance, so water won't be able to get in.

Also, limit switches (push) will be replaced with inductive ones (no contact), as waterproof ones failed my test- somehow protection of moving part ripped off.

Antenna itself already is waterproof.

Only thing that still is not protected is rotor lying in horizontal position- have to think of something... but after (29.6- last exam :D).

Yes, i am planning to use ampfiller presented previously in this thread- till now it proved itself as helpfull. Also, both cable and antenna supports 8w load, so it should not be a problem

Only current problem is time ?

pomwtin - July 27, 2015, 1:01 pm

Its been a while... so there is a little cracking rig update :)

Existing rig was finished, colored and wired nicely as possible (click to enlarge):

[\[img\]http://shrani.si/t/2U/10D/1p2jiLSY/img20150727200214.jpg\[/img\]](http://shrani.si/t/2U/10D/1p2jiLSY/img20150727200214.jpg)

[\[img\]http://shrani.si/t/3R/y/k0hjKoR/img20150727200239.jpg\[/img\]](http://shrani.si/t/3R/y/k0hjKoR/img20150727200239.jpg)

[\[img\]http://shrani.si/t/3w/iY/1SdkHKCt/img20150727200816.jpg\[/img\]](http://shrani.si/t/3w/iY/1SdkHKCt/img20150727200816.jpg)

Today ordered motherboard and cpu finnaly arrived, i decided for "asrock H97" and "intel celeron G1820 2.7GHz" as cpu performance is not needed in this case.

[\[img\]http://shrani.si/t/1Z/io/1RiMynGh/img20150727200004.jpg\[/img\]](http://shrani.si/t/1Z/io/1RiMynGh/img20150727200004.jpg)

[\[img\]http://shrani.si/t/20/PW/18hFmgWG/img20150727200014.jpg\[/img\]](http://shrani.si/t/20/PW/18hFmgWG/img20150727200014.jpg)

The plan is to build another rig on top of existing and meanwhile include two of 2.5" SSD slots:

[\[img\]http://shrani.si/t/3Z/QG/3DnlsYw5/img20150727195850.jpg\[/img\]](http://shrani.si/t/3Z/QG/3DnlsYw5/img20150727195850.jpg)

[\[img\]http://shrani.si/t/3/12F/3nprfs4b/img20150727195902.jpg\[/img\]](http://shrani.si/t/3/12F/3nprfs4b/img20150727195902.jpg)

And pcie x1 to x16 still needs to arrive.

Both rigs will be imported in distributed computing (as OCL supports max 8 GPUs) controlled through 3rd system (most probably R-pi running linux) via hashtopus, vOCL or custom script... have to make some tests first :)

Sadly, still no progress with antenna grid- hopefully next week, Ill have more time then.
Thats all for now :)

pomwtin - August 19, 2015, 12:24 pm

Had some free time, therefore another update.

- Rigs upper floor was made: MB holder, HDD holder (failed- it leans a bit, needs to be re-worked), Graphic card holder and switch was added (Dlink DES-1005D).

- Switch needed to be modded a bit- there were no mounting holes.

- PSU tested and working, holder needs to be made yet. Super flower 650 will supply 2 graphic cards and MB on upper floor, other two graphic cards will be supplied by LEPA 1600 (current use 1050W).

- Risers ordered

- R-pi ordered- it will act as controller for cluster.

- Web-based automation of process almost finished

- Second 2.5" SSD-rom and 125GB SSDordered, existing one mounted + 128GB SSD with system

+ 2x 3TB Seagate barracuda.

- Case will be painted after finished.

And of course, some pictures:

[\[img\]http://shrani.si/t/2C/132/33ZMiWek/img20150819185540.jpg\[/img\]](http://shrani.si/t/2C/132/33ZMiWek/img20150819185540.jpg)
[\[img\]http://shrani.si/t/9/gA/15FciZlk/img20150819185645.jpg\[/img\]](http://shrani.si/t/9/gA/15FciZlk/img20150819185645.jpg)
[\[img\]http://shrani.si/t/40/Tt/168WbUcq/img20150819202830.jpg\[/img\]](http://shrani.si/t/40/Tt/168WbUcq/img20150819202830.jpg)
[\[img\]http://shrani.si/t/1e/JM/3axgJUtJ/img20150819202731.jpg\[/img\]](http://shrani.si/t/1e/JM/3axgJUtJ/img20150819202731.jpg)
[\[img\]http://shrani.si/t/1z/132/1npBf3WN/img20150819202746.jpg\[/img\]](http://shrani.si/t/1z/132/1npBf3WN/img20150819202746.jpg)
[\[img\]http://shrani.si/t/7/W/f3zPjc2/img20150819202904.jpg\[/img\]](http://shrani.si/t/7/W/f3zPjc2/img20150819202904.jpg)
[\[img\]http://shrani.si/t/2Z/4T/5GGFFNA/img20150819202957.jpg\[/img\]](http://shrani.si/t/2Z/4T/5GGFFNA/img20150819202957.jpg)

Hopefully, it will be finished soon.

lipleite - August 19, 2015, 8:30 pm

Awesome thread! Im gonna follow it. Keep the good work and keep us updated!

Mad76e - August 20, 2015, 4:28 am

Finally! God damn I have waited for this

Is it possible to run oclhashcat on cluster? I didn't know that.. Or you're using Pyrit instead? It's a bit slower but supports clusters on the same network

However running with dual boards is not going to be cheap. How many watts do use in the current rig? And multiply with 2. That's a nice electric bill if it's going to run 24/7

You're thinking about selling a
WPA2 cracking service

pomwtin - August 20, 2015, 10:22 am

(Aug 19, 2015 08:30 PM)lipleite Wrote: [\[CITE\]](#) Awesome thread! Im gonna follow it. Keep the good work and keep us updated!

Thanks :)

Will do.

(Aug 20, 2015 04:28 AM)mad76e™ Wrote: [\[CITE\]](#) Finally! God damn I have waited for this

Is it possible to run oclhashcat on cluster? I didn't know that.. Or you're using Pyrit instead? It's a bit slower but supports clusters on the same network

However running with dual boards is not going to be cheap. How many watts do use in the current rig? And multiply with 2. That's a nice electric bill if it's going to run 24/7

You're thinking about selling a
WPA2 cracking serviceHehe yes it took quite a while.

Yes, it is possible. One option is hashtopus, other is simple python script to generate code in a way that one cluster run from 0% to 50% and other from 50% to 100%.

But i think Ill go with hashtopus, as additional work is latest thing i need now :)

Kraken however, will run on one board only.

I kind of do not like pyrit just because of reason you mentioned- its a bit slower.

Current power consumption is a bit over 1kW/h, so i am guessing final power consumption will be around 2.1 kW/h.

The plan is: free 3h run per handshake, then pause till electricy fee for "total request time - (minus) 3 hours" is paid.

This will be approx 0.21 USD per hour.

If key is cracked then "5 USD - (minus) exceed of paid electricity fee" will be required before sending key to user.

I will try to steal traffic from other much more expensive cracking service providers ?

Prices are not yet exactly calculated- but wont be higher than mentioned above if i guessed final power consumption correctly.