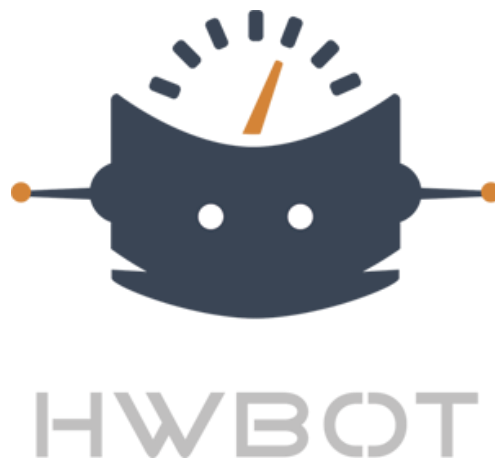


Building the future of competitive overclocking

An introduction to revision 6



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In this article I want to explain the workings of the upcoming HWBOT Revision 6. We will explain why we believe the focus should switch to competitive overclocking and how we plan to do this in Revision 6.

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Preface

I started writing this document as a way to structure the ideas of revision 6. Everything was clear in my head, but we never really managed to explain those ideas on forums or in written format. Usually because the explanation requires a lot of background information, but also because in our explanations we were skipping too much steps of the thought process. To explain revision 6 and the general direction we're taking with HWBOT (and also the overclocking community), we needed to write out everything that was on our mind. That resulted in this document.

Over the next couple of pages we will try to explain how the idea of revision 6 came to life and how we want to translate those ideas into a practical competitive overclocking format. You'll have to bear with the long text – 30 pages at the moment I'm writing this preface – and hopefully you won't get lost in the various topics. We will start by briefly describing the environment settings: the history of competitive overclocking and the reference with (arcade) gaming. Then go on to describing the main decision drivers for revision 6, which are basically the main argumentation. From those decision drivers, we will explain the system and highlight where the decision drivers come in place.

There are three main parts in this document:

- 1) Explanation of the Revision 6 division structure
- 2) Proposal of the "Team Coefficient"
- 3) Proposal of a system to establish an independent competitive overclocking platform

For those who are receiving this document ahead of the publication, some parts may be left out.

I hope you will understand the motives, plans and ideas better after reading this document. Enjoy.

Autarky for overclocking

It is known that the overclocking community is greatly dependent on external funding to grow and sustain itself. We do not only count the investment of hardware companies make to host live overclocking competitions and gatherings, but also the prize sponsorships in online overclocking competitions and of course the hardware sponsorships for the various overclockers. And even with all the support from the industry, most of the overclocking community – including those who are considered professional – is still funding this hobby itself. Of course, every hobby costs money and we don't think we should complain about the cost, but for a community it is important to reach a certain level of sustainability.

Looking at HWBOT specifically, what we consider the main place for competitive overclocking given the size of its community, the involvement of the community and the amount of competitive overclocking activity, we have to admit that we do not have financial freedom. Most, if not all, of our operations are funded by the industry in the form of advertising sponsorships or cooperative projects. This is how it is for most websites in the hardware industry. In fact most websites have difficulties finding the proper funding and usually resort to either monetizing on reviews or cooperating with sales websites.

From the start of our professional existing, we made a point of it to keep overclocking free for our users. The reasoning being that the overclockers already pay for the hardware and provide promotion for industry companies. The industry benefits twice: once by the sale, once by the promotion. Therefore the platform where people can enjoy their overclocking hobby must be funded by the industry, according to the logic. Since October 2009 that has worked fairly well. HWBOT has been running break-even for most of its professional existence, mostly thanks to a dedicate team of volunteers keeping the database and rankings clean.

The problem of dependency of the industry still exists however. If tomorrow all our advertising income goes away, our operations would be reduced to a fraction of what it is today. Therefore, we hope to work on overclocking autarky for revision 6.

Defining the goals for autarky

First we have to define our target goals for achieving autarky. Autarky is a situation where a society or community can exist by itself without the need for external help. In our case, autarky therefore requires the existence of a competitive overclocking platform which does not require support from external companies. The support can be financial, but also dependency on benchmark validation services. Autarky does not mean that the system can forever exist on its own without any intervention. It just means that any type of intervention, e.g.: fixing a bug, setting up a competition or writing a news item, can be provided or funded by the society.

In addition autarky means that the system can support itself in terms of growing a larger community base. To get more people involved in competitive overclocking, we require incentives. The incentives can be in the form of prizes, cash or hardware, or other promotional activities. The system needs to be interesting, that is the goal.

For revision 6 we have worked out a financial model that would allow the overclocking to achieve near-autarky.

Entry fee for divisions to cash prize purse

The idea is simple: for each division there's a minimum entry fee to compete. The pool of entry fee is then used to hand out cash prizes to the season winners. In other words, the community is pooling together a cash prize purse that will go back in the community. The prize purse depends completely on the size and effort of the community.

The entry fees come in one prize pool and are then divided over the various divisions. The entry fee varies per division.

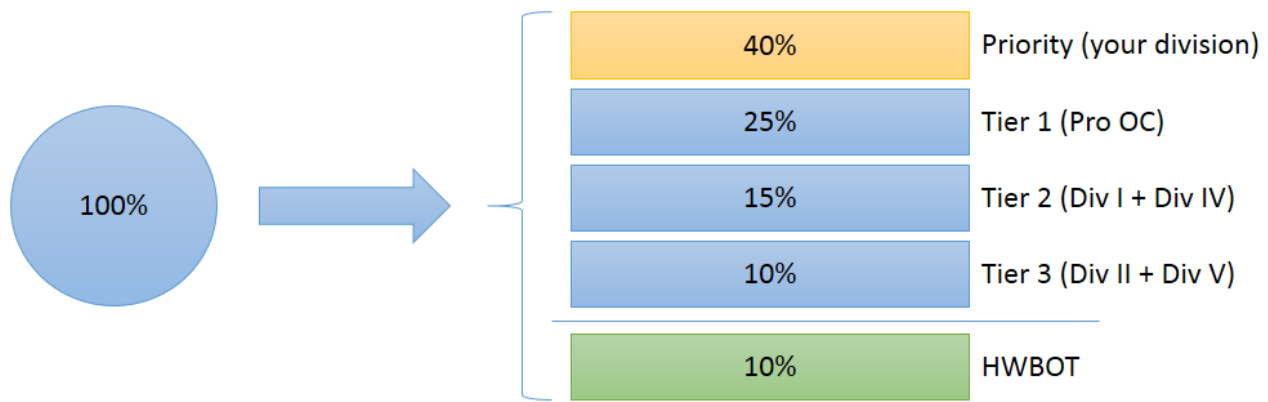
- Pro OC (tier 1): EUR €100 per team (minimum EUR €20 per member)
- Division I and VI (tier 2): EUR €25 per member
- Division II and V (tier 3): EUR €10 per member

- Division III, VI, VII: no entry fee

The entry cost of each division is lower than 5% of the system cost required to compete. Note that the lower divisions have no entry cost. That means there is also no cash prize purse for those divisions. That does not mean there will be no prizes – partners can always provide prizes to support the competitions.

The entry fee per person is then divided on the following key:

- 40% to priority division
- 25% to Tier 1
- 15% to Tier 2
- 10% to Tier 3
- 10% to HWBOT for administration costs



The priority division is the division of the person paying the entry fee. So if you are for example competing in Division I, then 40% of your entry fee (EUR €25) will go to the prize purse of the Division I. Note that also half of the 15% for Tier 2 will go to the Division I prize purse, meaning the total contribution for your division is 47.5% of the entry fee. For Tier 3 divisions that would be 45%. We also want to make it very clear that 10% of the entry fee will go to HWBOT for administration purposes.

Note that 90% of the money paid by the community goes straight back to the community.

Cash prize purse limitations

For a very long time, HWBOT stayed away from cash prizes for online overclocking competitions. There are two reasons for that. One, we believe that companies should invest as much as possible in live overclocking competitions and gatherings. If there's money available for overclocking activities, we want it to go to events where overclockers can meet each other in a real social environment.

Two, due to the anonymous and virtual characteristics of the internet, online validation of overclocking results will always present a problem. Even the most sophisticated anti-cheating methods in overclocking still fail today. Faulty submissions have been uploaded to Futuremark's, CPU-Z's and even XTU's database. Competitive overclocking over the internet is very prone to fraud and cheating. We try to keep

the incentive for cheating as low as possible by not including cash prizes or setting up the competitions in a way the cost of make fake results to enter the competition outweighs the gain from winning.

In revision 6 we feature a system where the community can fund its own prize purse. There are two main countermeasure to discourage frauds from trying to cheat the competition.

- The prize money is awarded at the end of the season
- The prize purse per division is limited

The consequence of the first countermeasure is that a fraud would have to be involved an entire year and across three rounds of five stages to win the cash prize. In total that is 15 different benchmark results. Not only does that increase the chance of catching a fraud significantly, it means it's not possible to "make a quick buck".

The limitation of the prize purse effectively defines the metaphorical carrot at the end of the stick. The lower the incentive, the less prone a competition is to be cheated. The prize purse is limited to (from rank 1 to rank 5):

- Tier 1: EUR €2500, €2000, €1500, €1000, €500
- Tier 2-3: EUR €500, €400, €300, €200, €100

Tier 1 is the Pro OC. A Pro OC team can consists of maximum 5 users. For a team of five, the maximum cash prize is EUR €500.

Note that for none of the tiers the cash prize is enough to cover the system costs for competing. The return of investment including only the entry fee is

- 25x for Tier 1 (entry fee €100, maximum prize €2500)
- 20x for Tier 2 (entry fee €25, maximum prize €500)
- 50x for Tier 3 (entry fee €10, maximum prize €500)

A small note on incentivization with cash prize

It is important to understand that the HWBOT aims to exist as a community-centric organization supporting the world of overclocking any way possible. It is our passion and goal to evangelize overclocking. Getting more people involved, creating a better overclocking environment to enjoy the hobby, while keeping a heart for the community. We want to grow and support the overclocking community. To keep a healthy and passionate community, we need people to be intrinsically motivated and inspired to be part of it.

The scientific community has done great research on motivation. To the question what drives people to be part of a society in the broadest sense of the world, most arrows point in the direct of intrinsic motivation. Financial retribution is not an intrinsic but an extrinsic motivator. In studies it has also been shown that a too strong extrinsic motivator will cause a decrease in intrinsic motivation.

Long story short, by keeping the cash prize purse limitation low we try to prevent people from being too extrinsically motivated to join the overclocking community. In addition, we try to ensure that those who

Financial simulation using real world data

- Division I: Core i7 + 1x GTX 770 or R9 280X
- Division II: Core i5 + 1x GTX 760 (Ti) or R9 270
- Division IV: AMD FX + 1x GTX 780 (Ti) or R9 290X
- Division V: AMD APU + no GPU

- Division I: 457 participants
- Division II: 67 participants
- Division IV: 238 participants
- Division V: 39 participants

- Some users might be accounted for in multiple divisions, which is not allowed in revision 6
- Some users might have the hardware to participate, but will not opt-in

[illegible]

| | | | | | | | | | | | |
|----------|--|-----|--|--|--|--|--|--|--|--|--|
| Priority | | 40% | | | | | | | | | |
| HWBOT | | 10% | | | | | | | | | |

- Participants = amount of participants as calculated based on the above stated parameters
- Weight = percentage of the entry fee that goes to the category
- Fee = entry fee for division
- Total income = calculated income based on the amount of participants and the entry fee
- Divisional spread = cash prize purse spread per division

Then we simulated the effect including the cash prize purse limitations.

| | Pro OC | Div I | Div IV | Div II | Div V | | Check |
|---------|---------|-------|--------|--------|-------|--|-------|
| | | | | | | | |
| #1 | 2500 | 500 | 500 | 500 | 500 | | |
| #2 | 2000 | 400 | 400 | 400 | 400 | | |
| #3 | 1500 | 300 | 300 | 300 | 300 | | |
| #4 | 1000 | 200 | 200 | 200 | 200 | | |
| #5 | 500 | 100 | 100 | 100 | 100 | | |
| | | | | | | | |
| Total | 7500 | 1500 | 1500 | 1500 | 1500 | | 13500 |
| | | | | | | | |
| Deficit | -2852.5 | 3784 | 1346,5 | 316 | -281 | | 2313 |

- Total = total prize purse cost
- Deficit = total prize purse cost minus the total available cash from the entry fee table

As you can see from the above two tables, the Pro OC competition has a self-sustainability deficit of EUR €2852.5. That means there's a shortage of almost three thousand euro to fund the Pro OC prize purse. The Division I has EUR €3784 more income than required for the prize purse, so part of that can be used to recover the deficit in the Pro OC division.

In total, the prize purse has a surplus of EUR €2313. The surplus will be used to either cover deficits in future overclocking seasons or for other community activities such as the organization of overclocking gatherings or live competitions.

Financial simulation for worse-case scenario

The simulation in the previous section was based on the assumption that the ratio of users in competitions over the total user base will remain the same in revision 6. We also made a simulation in a worse-case scenario if revision 6 would only achieve half that rate.

The simulation then is,

| | | | | | | | Divisional spread | | | | | |
|----------|--------|--------------|--------|-----|--------|------|-------------------|--------|--------|--------|--------|-------|
| | | Participants | Weight | Fee | Income | | Pro OC | Div I | Div IV | Div II | Div V | HWBOT |
| | | | | | | | | | | | | |
| Tier 1 | Pro OC | 9 | 25% | 100 | 900 | | 360 | 135 | 135 | 90 | 90 | 90 |
| Tier 2 | Div I | 229 | 15% | 25 | 5725 | 6550 | 1431,25 | 2290 | 858,75 | 286,25 | 286,25 | 572,5 |
| | Div IV | 33 | | | 825 | | 206,25 | 123,75 | 330 | 41,25 | 41,25 | 82,5 |
| Tier 3 | Div II | 119 | 10% | 10 | 1190 | 1390 | 297,5 | 89,25 | 89,25 | 476 | 119 | 119 |
| | Div V | 20 | | | 200 | | 50 | 15 | 15 | 20 | 80 | 20 |
| | | | | | | | | | | | | |
| Total | | | | | 17570 | | 4647.5 | 5284 | 2846.5 | 1816 | 1219 | 1757 |
| | | | | | | | | | | | | |
| Priority | | | 40% | | | | | | | | | |
| HWBOT | | | 10% | | | | | | | | | |

- Participants = amount of participants as calculated based on the above stated parameters
- Weight = percentage of the entry fee that goes to the category
- Fee = entry fee for division
- Total income = calculated income based on the amount of participants and the entry fee
- Divisional spread = cash prize purse spread per division

Then we simulated the effect including the cash prize purse limitations.

| | Pro OC | Div I | Div IV | Div II | Div V | | Check |
|---------|--------|-------|--------|--------|--------|--|-------|
| | | | | | | | |
| #1 | 2500 | 500 | 500 | 500 | 500 | | |
| #2 | 2000 | 400 | 400 | 400 | 400 | | |
| #3 | 1500 | 300 | 300 | 300 | 300 | | |
| #4 | 1000 | 200 | 200 | 200 | 200 | | |
| #5 | 500 | 100 | 100 | 100 | 100 | | |
| | | | | | | | |
| Total | 7500 | 1500 | 1500 | 1500 | 1500 | | 13500 |
| | | | | | | | |
| Deficit | -5155 | 1153 | -72 | -586.5 | -883.5 | | -5544 |

- Total = total prize purse cost
- Deficit = total prize purse cost minus the total available cash from the entry fee table

As you can see from the above table, a participation rate 50% lower than expected would make the overall deficit EUR €5544. In this case there are two options. Either HWBOT covers that deficit or the prize structure is adjusted. In the former, that would mean the system is reduces its autarky because it relies on an external partner to bail out in case the funding is not enough. The simplest solution is of course to reduce the cash prize purse.

For example, if we apply a reduction by 50% across the table the prize purse cost structure looks like this.

| | Pro OC | Div I | Div IV | Div II | Div V | | Check |
|---------|--------|-------|--------|--------|--------|--|-------|
| | | | | | | | |
| #1 | 1250 | 250 | 250 | 250 | 250 | | |
| #2 | 1000 | 200 | 200 | 200 | 200 | | |
| #3 | 750 | 150 | 150 | 150 | 150 | | |
| #4 | 500 | 100 | 100 | 100 | 100 | | |
| #5 | 250 | 50 | 50 | 50 | 50 | | |
| | | | | | | | |
| Total | 3750 | 750 | 750 | 750 | 750 | | 6750 |
| | | | | | | | |
| Deficit | -1405 | 1903 | 678 | 163,5 | -133,5 | | 1206 |

In this case, there's no deficit.

Note that the prize purse reduction is the same across the various divisions. We believe it would be fairer for the Pro OC to have a larger reduction than Divisions II and V since they have a larger part of the pie. Discussions on which reduction key to use exactly will no doubt follow, but are not for this document.

[Additional notes on near-autarky and free overclocking](#)

An important note to add to this topic is that this system is actually near-autarky. We estimated that the cost of running this platform is about EUR €10,000 per year if we include the configuration of competitions, writing news articles, fixing development bugs, updating the design, hosting and more of that. That means even in the first simulated scenario the system still relies on, in this case, HWBOT to be managed.

In a worst-case scenario where there are not enough financial support to pay for a full-time, part of that cost could be eliminated by relying on volunteers from the community to keep the competitive overclocking platform running.

Additionally, we would like to respond to those who will say that HWBOT is making overclocking pay-to-play. Overclocking and competitive overclocking is still free. If you don't want to pay for taking part in one of the divisions, you can still take part in the regular competitions at HWBOT. You can participate in all the Country Cups, the various leagues, the competitions organized by HWBOT's partners and so on. The only part of revision 6 where paying for be part of the competition is one where 90% of the income goes straight back to the community.