

# PROJECT HYDRA – QUICK START, DIAGNOSTIC

## STEP 1:

Click on "HYBRID OC" and select the voltage preset (UNDervolt, NORMAL, OC or XOC) you want to use. You may also enter custom voltages.

For AIO and air cooling system I do not recommend using the OC and XOC presets due to the risk of overheating.

If indecisive, skip this step - the base voltages HYDRA offers are safe for any cooling system and weak VRM.

**HYDRA 1.0D PRO**  
 OC-SANDBOX FOR ZEN3

AMD Ryzen 7 5800X 8-Core Processor  
 MSI MEG B550 UNIFY-X (MS-7D13) BIOS ver. A.43 SMU ver. 56.58.00  
 Microsoft Windows NT 6.2.9200.0 11/25/2021 12:32:09

CCD1		28.6°		CCD2		----		CCD3		----		CCD4		----	
C01	0	135	C05	282	143	---	---	---	---	---	---	---	---	---	---
C02	901	146	C06	0	139	---	---	---	---	---	---	---	---	---	---
C03	962	127	C07	0	131	---	---	---	---	---	---	---	---	---	---
C04	233	150	C08	109	150	---	---	---	---	---	---	---	---	---	---

CPU (%)

Vdroop (%)

CPU TEL (V)

CPU VID (V)

CPU TDC (A)

CPU EDC (A)

CPU PPT (W)

LOAD TYPE

THREADS	ENABLED	VID	CCD1	CCD2	CCD3	CCD4	DYNAMIC	STATS
1T-2T	<input checked="" type="checkbox"/>	1375	4750	-	-	-	<input checked="" type="checkbox"/>	0
3T-4T	<input checked="" type="checkbox"/>	1375	4725	-	-	-	<input checked="" type="checkbox"/>	0
5T-8T	<input checked="" type="checkbox"/>	1300	4575	-	-	-	<input checked="" type="checkbox"/>	0
ALL (AVX2)	<input checked="" type="checkbox"/>	1250	4525	-	-	-	<input checked="" type="checkbox"/>	0
ALL (FMA3)	<input checked="" type="checkbox"/>	1100	4150	-	-	-	<input checked="" type="checkbox"/>	0
ALL (GAME)	<input checked="" type="checkbox"/>	1300	4625	-	-	-	<input checked="" type="checkbox"/>	0

UNDervolt
NORMAL
OC
XOC

STATUS : READY !

ACTIVATE PROFILES

SAVE PROFILES

CO VALUES

CREATE BACKUP

LOAD BACKUP

HYBRID OC

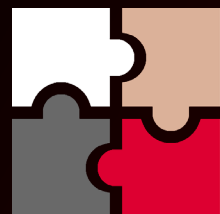
SETTINGS

LOGGING

DIAGNOSTIC

BOOST TEST

COMPARE



# PROJECT HYDRA – QUICK START, DIAGNOSTIC

## STEP 2:

If you have selected **NORMAL**, **OC** or **XOC** presets, you must carefully review the rest of HYDRA's settings in order to protect the system from overheating or excessive power consumption.

For example, do not forget to increase the **Max EDC**, **Max TDC** and **Max PPT** limits in the **SETTINGS** tab. In most cases, it is sufficient to increase these values by 30-40.

If one of the limits is reached during HYDRA operation, the profiles will automatically throttle mode or HYBRID OC will be disabled (AMD standard boost will be enabled). These safeguards also work under Diagnostics.

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OC-SANDBOX FOR ZEN3

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Microsoft Windows NT 6.2.9200.0 11/25/2021 12:32:09

CCD1	28°	CCD2	----	CCD3	----	CCD4	----
C01 140 135		C05 101 143					
C02 2 146		C06 121 139					
C03 1730 127		C07 49 131					
C04 177 150		C08 189 150					

CPU (%) 1.2 Vdroop (%) -0.5 CPU TEL (V) 0.992 CPU VID (V) 0.987 CPU TDC (A) 0.5 CPU EDC (A) 46.9 CPU PPT (W) 28.2 LOAD TYPE IDLE

**MAIN SETTINGS**

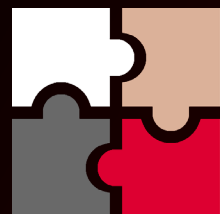
- Auto-load APP with OS
- Event notifications
- Auto-check update
- Pop-up tips
- Clear standby cache
- Clear standby cache (min) 4
- GUI refresh (ms) 1000
- HYDRA priority Real-time

**SAFETY SYSTEM SETTINGS**

- Max PPT (W) 160
- Max EDC (A) 160
- Max TDC (A) 130
- Max temperature (°C) 95
- Timeout of throttling (cycles) 100

**DIAGNOSTIC SETTINGS**      **HYBRID OC SETTINGS**

HYBRID OC    **SETTINGS**    LOGGING    DIAGNOSTIC    BOOST TEST    COMPARE



# PROJECT HYDRA – QUICK START, DIAGNOSTIC

## STEP 3:

You can choose which tests to perform (**CORE CO testing**, **CCD CO testing** and **Profile creation**) under the **DIAGNOSTIC** tab. The order of testing does not matter.

**CORE CO testing** - defines the limits at which HYBRID OC will stop frequency ramping (low-threaded load).

**CCD CO testing** - defines the limits at which HYBRID OC will stop frequency ramping (multi-threaded load, AVX2 and FMA3 profiles).

**Profile creation** - searches for stable base frequencies for all profiles **based on the obtained CO values and voltages**.

**CORE CO FFT** and **CCD CO FFT** - the size of the task for Prime95. It is not recommended that inexperienced users change these values.

**Enhance accuracy** - doubles the search time for an error.

**HYDRA 1.0D PRO**  
OC-SANDBOX FOR ZEN3

AMD Ryzen 7 5800X 8-Core Processor  
MSI MEG B550 UNIFY-X (MS-7D13) BIOS ver. A.43 SMU ver. 56.58.00  
Microsoft Windows NT 6.2.9200.0 11/25/2021 12:53:47

CCD	Temp	C01	C02	C03	C04	C05	C06	C07	C08
CCD1	42.8°	75	135	1818	2924	123	143	39	131
CCD2	----	---	---	---	---	---	---	---	---
CCD3	----	---	---	---	---	---	---	---	---
CCD4	----	---	---	---	---	---	---	---	---

CPU (%) 2.1 Vdroop (%) 0.8 CPU TEL (V) 1.455 CPU VID (V) 1.467 CPU TDC (A) 15.8 CPU EDC (A) 139 CPU PPT (W) 50.7 LOAD TYPE SSE

CORE#	ON/OFF	CORE#	ON/OFF
C01	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C02	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C03	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C04	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C05	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C06	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C07	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C08	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>

**DIAGNOSTIC SETTINGS**

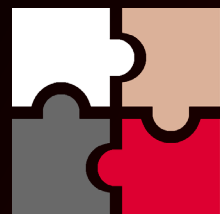
- Turn Off PC after diagnostic
- Profile creation
- Preheating phase
- Target AVX1 PPT (W) 145
- Target AVX1 temp. (°C) 85
- Target AVX2 PPT (W) 145
- Target AVX2 temp. (°C) 85
- Find best voltages Disabled

**DIAGNOSTIC SETTINGS**

- CORE CO testing
- CORE CO testing VID (mV) 1375
- CORE CO FFT (K) 84
- CCD CO testing
- CCD CO testing VID (mV) 1175
- CCD CO FFT (K) 1344
- Enhance accuracy

MAIN SETTINGS

HYBRID OC SETTINGS LOGGING DIAGNOSTIC BOOST TEST COMPARE



# PROJECT HYDRA – QUICK START, DIAGNOSTIC

## STEP 3:

CORE CO testing VID and CCD CO testing VID – values of voltages at which CO values will be searched.

The change is only welcome for advanced users, in which case you should set the voltage for the CORE CO testing VID to the voltage you plan to use for the 1T-2T profile. CCD CO testing VID - the voltage value must match the voltage of the ALL (AVX2) profile.

NOTE: the best voltages for Zen 3 and 7nm processors are used by default.

**HYDRA 1.0D PRO**  
OC-SANDBOX FOR ZEN3

AMD Ryzen 7 5800X 8-Core Processor  
MSI MEG B550 UNIFY-X (MS-7D13) BIOS ver. A.43 SMU ver. 56.58.00  
Microsoft Windows NT 6.2.9200.0 11/25/2021 12:53:47

CCD1	42.8°	CCD2	----	CCD3	----	CCD4	----
C01: 75 135		C05: 123 143					
C02: 143 146		C06: 44 139					
C03: 1818 127		C07: 39 131					
C04: 2924 150		C08: 1406 150					

CPU (%) 2.1 Vdroop (%) 0.8 CPU TEL (V) 1.455 CPU VID (V) 1.467 CPU TDC (A) 15.8 CPU EDC (A) 139 CPU PPT (W) 50.7 LOAD TYPE SSE

DIAGNOSTIC SETTINGS			
CORE#	ON/OFF	CORE#	ON/OFF
C01	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C02	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C03	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C04	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C05	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C06	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C07	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C08	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>

Turn Off PC after diagnostic

Profile creation

Preheating phase

Target AVX1 PPT (W) 145

Target AVX1 temp. (°C) 85

Target AVX2 PPT (W) 145

Target AVX2 temp. (°C) 85

Find best voltages Disabled

CORE CO testing

CORE CO testing VID (mV) 1375

CORE CO FFT (K) 84

CCD CO testing

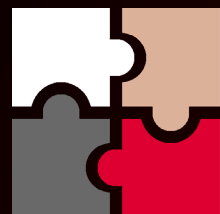
CCD CO testing VID (mV) 1175

CCD CO FFT (K) 1344

Enhance accuracy

MAIN SETTINGS

HYBRID OC SETTINGS LOGGING DIAGNOSTIC BOOST TEST COMPARE



# PROJECT HYDRA – QUICK START, DIAGNOSTIC

### STEP 3 (OPTIONAL):

The user has the option of combining any preset voltages with the automatic search ideal voltages for AVX2 and FMA3 loads.

In order to use this function, the user must specify the cooling system (AIR/AIO/CUSTOM) as well as set the **power** and **temperature limits** for each load type.

**NOTE:** if for some reason this is difficult for you, leave Find best voltages in Disabled mode.

**HYDRA 1.0D PRO**  
OC-SANDBOX FOR ZEN3

AMD Ryzen 7 5800X 8-Core Processor  
MSI MEG B550 UNIFY-X (MS-7D13) BIOS ver. A.43 SMU ver. 56.58.00  
Microsoft Windows NT 6.2.9200.0 11/25/2021 12:53:47

CCD	Temp	C01	C02	C03	C04	C05	C06	C07	C08
CCD1	31°	28	135	165	0	0	146	127	150
CCD2	----	---	---	---	---	0	139	63	131
CCD3	----	---	---	---	---	---	---	---	---
CCD4	----	---	---	---	---	---	---	---	---

CORE#	ON/OFF	CORE#	ON/OFF
C01	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C02	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C03	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C04	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C05	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C06	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C07	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C08	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>

DIAGNOSTIC SETTINGS

- Turn Off PC after diagnostic:
- Profile creation:
- Preheating phase:
- Target AVX1 PPT (W): 145
- Target AVX1 temp. (°C): 85
- Target AVX2 PPT (W): 145
- Target AVX2 temp. (°C): 85
- Find best voltages: CUSTOM

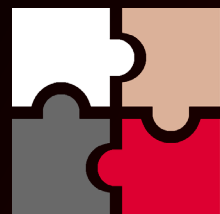
DIAGNOSTIC SETTINGS

- CORE CO testing:
- CORE CO testing VID (mV): 1375
- CORE CO FFT (K): 84
- CCD CO testing:
- CCD CO testing VID (mV): 1175
- CCD CO FFT (K): 1344
- Enhance accuracy:

CPU (%) 0 Vdroop (%) -3.1 CPU TEL (V) 1.086 CPU VID (V) 1.053 CPU TDC (A) 3.4 CPU EDC (A) 84 CPU PPT (W) 31.6 LOAD TYPE IDLE

MAIN SETTINGS

HYBRID OC SETTINGS LOGGING DIAGNOSTIC BOOST TEST COMPARE



# PROJECT HYDRA – QUICK START, DIAGNOSTIC

## STEP 3 (OPTIONAL):

During the process of searching for the ideal voltage, the user receives different information about energy efficiency as well as information about which voltage has the best frequency scaling.

**NOTE:** the duration of the auto voltage detection will depend on the cooling system used (each type of cooling has its own preheating phase) and on the limits (PPT and temperature) that the user has selected.

If you don't need the automatic voltage detection, turn it off before starting a new diagnostic.

**HYDRA 1.0D PRO**  
OC-SANDBOX FOR ZEN3

AMD Ryzen 7 5800X 8-Core Processor  
MSI MEG B550 UNIFY-X (MS-7D13) BIOS ver. A.43 SMU ver. 56.58.00  
Microsoft Windows NT 6.2.9200.0 11/25/2021 13:10:05

CCD1	55.4°	CCD2	----	CCD3	----	CCD4	----
C01: 3500 135		C05: 3499 143					
C02: 3500 146		C06: 3499 139					
C03: 3499 127		C07: 3499 131					
C04: 3499 150		C08: 3499 150					

CPU (%) 100 Vdroop (%) 3.8 CPU TEL (V) 1.131 CPU VID (V) 1.175 CPU TDC (A) 57.4 CPU EDC (A) 72.1 CPU PPT (W) 100.4 LOAD TYPE FMA3

CCD1: 4500MHz 3.85 MHz/mV 41 MHz/W  
13:19:14: STEP#21  
TEL: 1186mV VID: 1250mV TEMPERATURE: 78.3°C POWER: 140.8W  
CCD1: 4525MHz 3.82 MHz/mV 40 MHz/W  
13:19:37: STEP#22  
TEL: 1190mV VID: 1262mV TEMPERATURE: 80.1°C POWER: 142.8W  
CCD1: 4525MHz 3.8 MHz/mV 39 MHz/W

The power limit has been reached: 142.8W  
Voltage you are looking for: 1262mV  
Best voltage: 1012mV  
Optimal voltage: 1100mV

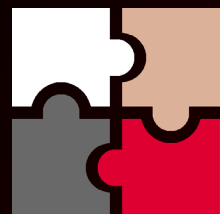
13:19:40: The search for the ideal voltage for the AVX1 has begun  
13:20:04: STEP#1  
TEL: 1066mV VID: 1100mV TEMPERATURE: 52.9°C POWER: 91.9W  
CCD1: 3500MHz 3.28 MHz/mV 64 MHz/W

30%

STOP THE PROCESS

Peak/avg response speed (ms) 11.5 / 11

HYBRID OC SETTINGS LOGGING DIAGNOSTIC BOOST TEST COMPARE



# PROJECT HYDRA – QUICK START, DIAGNOSTIC

## STEP 4:

Once you have decided on the settings and preset voltages, run the diagnostics by pressing the **DIAGNOSTIC** button.

This process can take from **2-5 hours**, depending on the quality of the sample (higher the quality, the longer it takes).

The system may periodically reboot during diagnostics – this is completely normal.

Once the diagnostics are completed, the corresponding tables under **HYBRID OC** will be automatically entered and saved. The user will also receive a message that the diagnostic process is complete.

**NOTE: re-diagnostics is recommended only if you have changed the CPU VRM or DRAM OC settings.**

**HYDRA 1.0D PRO**  
OC-SANDBOX FOR ZEN3

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MSI MEG B550 UNIFY-X (MS-7D13) BIOS ver. A.43 SMU ver. 56.58.00  
Microsoft Windows NT 6.2.9200.0 11/25/2021 13:10:05

CCD1	61.3°	CCD2	----	CCD3	----	CCD4	----
C01	4850	135	C05	109	143		
C02	1639	146	C06	147	139		
C03	1011	127	C07	77	131		
C04	70	150	C08	118	150		

CPU (%) 9.9 Vdroop (%) 1.1 CPU TEL (V) 1.346 CPU VID (V) 1.363 CPU TDC (A) 22.2 CPU EDC (A) 140 CPU PPT (W) 58.1 LOAD TYPE AVX2

```
13:29:06: Test#1
Attention, CORE#1 has abnormally high DELTA.
CORE#1 CO: 100 DELTA: 92 TEMPERATURE: 63°C
13:29:47: Saving intermediate values...
13:29:58: Test#2
13:30:40: Saving intermediate values...
13:30:51: Test#3

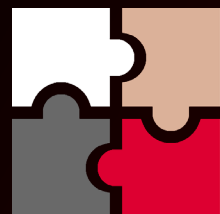
13:31:36: Step: 4
CORE#1 BASE FREQ: 4775MHz REAL FREQ: 4850MHz
13:31:36: Saving intermediate values...
13:31:45: Test#1
CORE#1 CO: 127 DELTA: 27 TEMPERATURE: 62°C
13:32:26: Saving intermediate values...
13:32:38: Test#2
13:33:19: Saving intermediate values...
13:33:30: Test#3
```

75%

STOP THE PROCESS

Peak/avg response speed (ms) 11.2 / 11

HYBRID OC SETTINGS LOGGING **DIAGNOSTIC** BOOST TEST COMPARE



# PROJECT HYDRA – QUICK START, DIAGNOSTIC

## OPTIONAL STEP:

You may want to re-test specific cores – in order to do this, go to the **SETTINGS** tab and select the cores that you want to test.

**Enhance accuracy** - intended for more accurate diagnosis of cores or CCDs. Doubles the testing time. Not recommended by default.

**Safe CO range** - frequency vs. voltage curves for cores are not always smooth (according to SMU info). To avoid abnormal CO results, it is recommended to activate this option. Otherwise, it may cause malfunctions during the operation of the HYBRID OC.

**HYDRA 1.0D PRO**  
OC-SANDBOX FOR ZEN3

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MSI MEG B550 UNIFY-X (MS-7D13) BIOS ver. A.43 SMU ver. 56.58.00  
Microsoft Windows NT 6.2.9200.0 11/25/2021 13:10:05

CCD	Temp	Core 1	Core 2	Core 3	Core 4
CCD1	31.6°	C01: 129	C02: 458	C03: 709	C04: 13
CCD2	----	C05: 43	C06: 366	C07: 0	C08: 60
CCD3	----				
CCD4	----				

CPU (%) 0 Vdroop (%) 0 CPU TEL (V) 1.194 CPU VID (V) 1.194 CPU TDC (A) 3.3 CPU EDC (A) 97.8 CPU PPT (W) 32.3 LOAD TYPE IDLE

DIAGNOSTIC SETTINGS			
CORE#	ON/OFF	CORE#	ON/OFF
C01	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C02	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
C03	<input type="checkbox"/>	-	<input type="checkbox"/>
C04	<input type="checkbox"/>	-	<input type="checkbox"/>
C05	<input type="checkbox"/>	-	<input type="checkbox"/>
C06	<input type="checkbox"/>	-	<input type="checkbox"/>
C07	<input type="checkbox"/>	-	<input type="checkbox"/>
C08	<input type="checkbox"/>	-	<input type="checkbox"/>

Turn Off PC after diagnostic  Profile creation  Preheating phase  Target AVX1 PPT (W) 145 Target AVX1 temp. (°C) 85 Target AVX2 PPT (W) 145 Target AVX2 temp. (°C) 85 Find best voltages Disabled

CORE CO testing  CORE CO testing VID (mV) 1375 CORE CO FFT (K) 84 CCD CO testing  CCD CO testing VID (mV) 1175 CCD CO FFT (K) 1344 Enhance accuracy

MAIN SETTINGS

HYBRID OC SETTINGS LOGGING **DIAGNOSTIC** BOOST TEST COMPARE