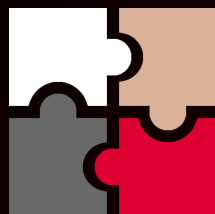


PROJECT HYDRA

OC-SANDBOX FOR ZEN3+ PROCESSORS

HYDRA 1.0C PRO IS ALREADY AVAILABLE FOR PATREON SUBSCRIBERS

1USMUS 2021



PROJECT HYDRA – NEW PLATFORM, NEW FEATURES

- Exclusive APP for ZEN 3 and ZEN 3+ processors
- New platform, new core, new UI, compact size
- Powerful customization for each profile
- 4 voltage curves (presets) for all profiles (undervolt, normal, OC and XOC)
- Save up to 9 profiles
- Individual profiles for Gaming and AVX2
- New Diagnostics (all values are filled in automatically)
- All profiles can work in dynamic mode (unlocked CO in PRO version)

HYDRA 1.0C PRO

OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:33:33

CCD1		30.7°		CCD2		28.7°		CCD3		----		CCD4		----	
C01	0	162	C04	0	166	C07	146	141	C10	3214	133	---	---	---	---
C02	94	158	C05	0	174	C08	233	145	C11	159	150	---	---	---	---
C03	0	170	C06	0	174	C09	0	154	C12	220	137	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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	4850	4725	-	-	<input checked="" type="checkbox"/>	3
3T-4T	<input checked="" type="checkbox"/>	1375	4825	4700	-	-	<input checked="" type="checkbox"/>	0
5T-6T	<input checked="" type="checkbox"/>	1325	4750	4625	-	-	<input checked="" type="checkbox"/>	0
7T-9T	<input checked="" type="checkbox"/>	1325	4700	4550	-	-	<input checked="" type="checkbox"/>	0
10T-12T	<input checked="" type="checkbox"/>	1275	4625	4475	-	-	<input checked="" type="checkbox"/>	1
ALL (AVX2)	<input checked="" type="checkbox"/>	1225	4550	4425	-	-	<input checked="" type="checkbox"/>	0
ALL (FMA3)	<input checked="" type="checkbox"/>	1050	4025	3975	-	-	<input checked="" type="checkbox"/>	0
ALL (GAME)	<input checked="" type="checkbox"/>	1300	4725	4550	-	-	<input checked="" type="checkbox"/>	0

DEACTIVATE PROFILES

SAVE PROFILES

CO VALUES

CREATE BACKUP

LOAD BACKUP

UNDervOLT

NORMAL

OC

XOC

STATUS : READY !

HYBRID OC

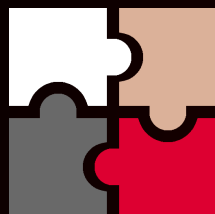
SETTINGS

LOGGING

DIAGNOSTIC

BOOST TEST

COMPARE



PROJECT HYDRA – NEW PLATFORM, NEW FEATURES

- 2 CO tables for different types of tasks allows for maximum performance (created automatically during diagnostics)
- Complete independence from CPPC
- Real-time CO control, allowing you to change V/F on the fly, without rebooting
- Each CCD has its own differentiated frequency control
- Curve Optimizer search tool for each core
- Real-time CO bottle-neck information
- Profile backup management system

HYDRA 1.0C PRO

OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:33:33

CCD1 30.4°

C01	0	162	C04	57	166
C02	58	158	C05	0	174
C03	0	170	C06	0	174
---	---	---	---	---	---

CCD2 29.8°

C07	0	141	C10	3485	133
C08	418	145	C11	0	150
C09	0	154	C12	301	137
---	---	---	---	---	---

CCD3 ----

---	---	---	---	---	---
---	---	---	---	---	---
---	---	---	---	---	---
---	---	---	---	---	---

CCD4 ----

---	---	---	---	---	---
---	---	---	---	---	---
---	---	---	---	---	---
---	---	---	---	---	---

CPU (%) Vdroop (%)

CPU TEL (V) CPU VID (V)

CPU TDC (A) CPU EDC (A)

CPU PPT (W) LOAD TYPE

CO FOR LOW-THREAD LOAD

CORE#	CO	CORE#	CO
C01	211	C07	147
C02	217	C08	204
C03	265	C09	122
C04	220	C10	175
C05	92	C11	150
C06	82	C12	178

CO FOR MULTI-THREAD LOAD

CORE#	CO	CORE#	CO
C01	51	C07	46
C02	90	C08	52
C03	58	C09	40
C04	62	C10	68
C05	33	C11	34
C06	44	C12	54

DEACTIVATE PROFILES

SAVE PROFILES

TO PROFILES

CREATE BACKUP

LOAD BACKUP

STATUS : READY !

HYBRID OC

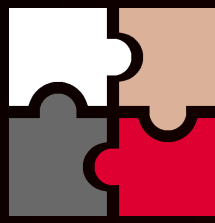
SETTINGS

LOGGING

DIAGNOSTIC

BOOST TEST

COMPARE



PROJECT HYDRA – NEW PLATFORM, NEW FEATURES

- Modular setup storage system (protection against configuration file corruption)
- Ability to adjust the response speed and CAC-tolerances of the dynamic mode
- Event notification system
- Built-in fail-safes against system and user errors
- 24/7 monitoring of processor parameters and automatic shutdown of profiles during critical situations
- Special mode for high-intensity workloads

HYDRA 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:33:33

CCD1	31.2°	CCD2	29.3°	CCD3	----	CCD4	----
C01: 0, 162		C07: 0, 141		C10: 2868, 133		---	
C02: 141, 158		C08: 136, 145		C11: 0, 150		---	
C03: 0, 170		C09: 0, 154		C12: 203, 137		---	
---		---		---		---	

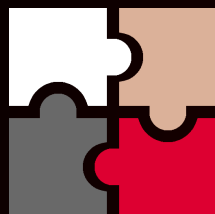
CPU (%) 0 Vdroop (%) 0.1 CPU TEL (V) 1.099 CPU VID (V) 1.1 CPU TDC (A) 2.7 CPU EDC (A) 112.3 CPU PPT (W) 34.2 LOAD TYPE SSE

HYBRID OC SETTINGS

FREQUENCY LOCK mode	<input checked="" type="checkbox"/>	OC response speed (ms)	8
HEAVY mode	<input type="checkbox"/>	Core activation trigger (%)	50
CO table #2 for GAME	<input checked="" type="checkbox"/>	AVX1 CO offset	0
Frequency limit	5100	AVX1 CAC threshold (%)	12
GPU CORE trigger (%)	50	FMA3 CAC threshold (%)	24
GPU MEMORY trigger (%)	8	Holding time MT (ms)	40
GAME CO offset	0	Holding time LT (ms)	40

MAIN SETTINGS

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



PROJECT HYDRA – NEW PLATFORM, NEW FEATURES

- Automatic loading of profiles upon Windows startup
- Clear standby cache - maximum smoothness in games (higher FPS for 0.1% and 1% events)
- Many configurations that allows the user to control all HYDRA processes more accurately (including advanced trigger settings for the GAME profile)
- Frequency limiting mechanisms in ultralight loads (overboost protection)
- Auto updates (PRO version)
- Automatic search individual voltages for AVX1 and AVX2 loads

HYDRA 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:33:33

CCD	Temp	Core	Temp	Core	Temp	Core	Temp	Core	
CCD1	30.6°	C01: 0	162	C04: 0	166	C07: 70	141	C10: 3369	133
		C02: 97	158	C05: 0	174	C08: 207	145	C11: 0	150
		C03: 0	170	C06: 0	174	C09: 0	154	C12: 128	137
		---	---	---	---	---	---	---	---

CPU (%) 2.8 Vdroop (%) 0.4 CPU TEL (V) 1.096 CPU VID (V) 1.1 CPU TDC (A) 3.8 CPU EDC (A) 112.3 CPU PPT (W) 35.9 LOAD TYPE SSE

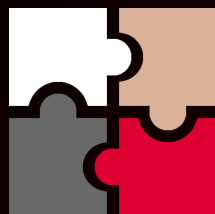
DIAGNOSTIC SETTINGS			
CORE#	ON/OFF	CORE#	ON/OFF
C01	<input checked="" type="checkbox"/>	C07	<input checked="" type="checkbox"/>
C02	<input checked="" type="checkbox"/>	C08	<input checked="" type="checkbox"/>
C03	<input checked="" type="checkbox"/>	C09	<input checked="" type="checkbox"/>
C04	<input checked="" type="checkbox"/>	C10	<input checked="" type="checkbox"/>
C05	<input checked="" type="checkbox"/>	C11	<input checked="" type="checkbox"/>
C06	<input checked="" type="checkbox"/>	C12	<input checked="" type="checkbox"/>

Profile creation
Preheating phase
Target AVX1 PPT (W) 170
Target AVX1 temp. (°C) 75
Target AVX2 PPT (W) 170
Target AVX2 temp. (°C) 75
Find best voltages Disabled

CORE CO testing
CCD CO testing
Enhance accuracy
Safe CO range
Equalize CO in CCD
Turn Off PC after diagnostic
CO diagnostic mode SSE

MAIN SETTINGS

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



PROJECT HYDRA – NEW PLATFORM, NEW FEATURES

- Updated logging system
- Simplified and more intuitive interface
- A new way to evaluate processor quality
- Real-time monitoring
- Real-time Vdroop and LOAD TYPE information
- CO correction prompt upon failure

HYDRA 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:42:50

CCD1	38°	CCD2	36.7°	CCD3	----	CCD4	----
C01: 500 162		C07: 15 141		C10: 3485 133		----	
C02: 739 158		C08: 281 145		C11: 33 150		----	
C03: 961 170		C09: 7 154		C12: 437 137		----	
----		----		----		----	

CPU (%) 19.4 Vdroop (%) 0.9 CPU TEL (V) 1.112 CPU VID (V) 1.1 CPU TDC (A) 16.9 CPU EDC (A) 113.7 CPU PPT (W) 52.7 LOAD TYPE IDLE

DRAM speed 3733 MHz

Creating a basic configuration file for settings...
Information about the last failure
Unstable frequency, APIC ID: 3

If the failure occurred in a game:
Decrease by 30 the values for (GAME CO offset, SETTINGS tab).

If the failure occurred in a multi-threaded load (CPU usage > 70%):
In the CO table #2 reduce the CO for CORE#2 by 10.

If the failure occurred in a low-threaded load (CPU usage < 70%):
In the CO table #1 reduce the CO for CORE#2 by 20.

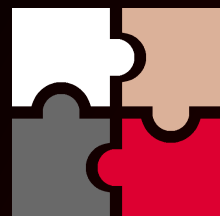
If the above information is difficult for you - press the MINUS button for both CO tables.

0%

STOP THE PROCESS

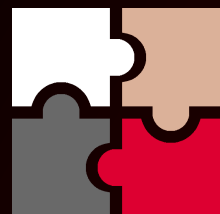
Peak/avg response speed (ms) 21.5 / 10.8

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



PROJECT HYDRA – QUICK START, REQUIREMENTS

- Zen 3 CPU : Ryzen 9 5950X, Ryzen 9 5900X, Ryzen 7 5800X, Ryzen 7 5700G, Ryzen 5 5600X and Ryzen 5 5600G.
- Stable, overclocked (or XMP) DRAM.
- PBO settings – no matter. Disabled (Auto) Curve Optimizer (in UEFI).
- Recommended values for Manual CPU LLC (Load Line Calibration). ASUS - 3, MSI - 4, ASRock - 2, GIGABYTE - High.
- CPU Voltage - Auto (in BIOS). Offset is forbidden.
- Windows 10 build 2004 or newer. Windows 11 fully supported.
- Chipset drivers or Ryzen Master – Not required.
- Actual GPU drivers (GeForce 471.68 / AMD Radeon Adrenalin 21.6.1 or newer).
- Power plan – Balanced (recommended).



PROJECT HYDRA – QUICK START, DIAGNOSTIC

STEP 1:

Click on "HYBRID OC" and select the voltage preset (UNDERSVOLT, 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 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:42:50

CCD1		31.9°		CCD2		30.3°		CCD3		----		CCD4		----	
C01	2	162	C04	0	166	C07	0	141	C10	3038	133	----	----	----	----
C02	0	158	C05	0	174	C08	303	145	C11	1039	150	----	----	----	----
C03	74	170	C06	0	174	C09	0	154	C12	518	137	----	----	----	----
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

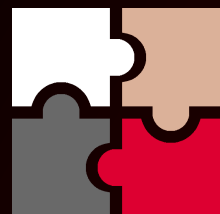
CPU (%) 0 Vdroop (%) -0.4 CPU TEL (V) 1.122 CPU VID (V) 1.118 CPU TDC (A) 3.1 CPU EDC (A) 55.1 CPU PPT (W) 35.9 LOAD TYPE IDLE

THREADS	ENABLED	VID	CCD1	CCD2	CCD3	CCD4	DYNAMIC	STATS
1T-2T	<input checked="" type="checkbox"/>	1375	4850	4725	-	-	<input checked="" type="checkbox"/>	36
3T-4T	<input checked="" type="checkbox"/>	1375	4825	4700	-	-	<input checked="" type="checkbox"/>	2
5T-6T	<input checked="" type="checkbox"/>	1325	4750	4625	-	-	<input checked="" type="checkbox"/>	0
7T-9T	<input checked="" type="checkbox"/>	1325	4700	4550	-	-	<input checked="" type="checkbox"/>	0
10T-12T	<input checked="" type="checkbox"/>	1275	4625	4475	-	-	<input checked="" type="checkbox"/>	0
ALL (AVX2)	<input checked="" type="checkbox"/>	1225	4550	4425	-	-	<input checked="" type="checkbox"/>	0
ALL (FMA3)	<input checked="" type="checkbox"/>	1050	4025	3975	-	-	<input checked="" type="checkbox"/>	0
ALL (GAME)	<input checked="" type="checkbox"/>	1300	4725	4550	-	-	<input checked="" type="checkbox"/>	0

ACTIVATE PROFILES
SAVE PROFILES
CO VALUES
CREATE BACKUP
LOAD BACKUP

UNDERSVOLT NORMAL OC XOC STATUS : profiles are successfully deactivated!

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.

HYDRA 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:42:50

CCD1	32°	CCD2	30.7°	CCD3	----	CCD4	----
C01: 0 (162)		C07: 38 (141)		C10: 2486 (133)			
C02: 0 (158)		C08: 326 (145)		C11: 1586 (150)			
C03: 0 (170)		C09: 0 (154)		C12: 556 (137)			
---		---		---		---	

CPU (%) 0.8 Vdroop (%) 0.1 CPU TEL (V) 1.073 CPU VID (V) 1.074 CPU TDC (A) 2.7 CPU EDC (A) 68.6 CPU PPT (W) 34.9 LOAD TYPE IDLE

MAIN SETTINGS

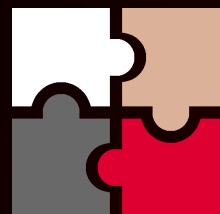
- Auto-load APP with OS:
- Event notifications:
- Auto-check update:
- Pop-up tips:
- Clear standby cache:
- Clear standby cache (min): 4
- GUI refresh (ms): 1000
- HYDRA priority: A-normal

SAFETY SYSTEM SETTINGS

- Max PPT (W): 170
- Max EDC (A): 170
- Max TDC (A): 140
- Max temperature (°C): 95

Navigation: << DIAGNOSTIC SETTINGS >> HYBRID OC SETTINGS

Bottom Bar: 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 (GAME and low-thread load).

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

CO diagnostic mode – SSE. In most cases it is highly accurate and is recommended for use. **AVX** mode runs hotter.

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

Equalize CO in CCD - this operation reduces the CO difference between the cores in each CCD. Can significantly improve stability for **FREQUENCY LOCK mode**.

HYDRA 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:42:50

CCD1		32°		CCD2		30°		CCD3		----		CCD4		----	
C01	0	162	C04	0	166	C07	0	141	C10	489	133	----	----	----	----
C02	244	158	C05	0	174	C08	147	145	C11	168	150	----	----	----	----
C03	0	170	C06	0	174	C09	0	154	C12	330	137	----	----	----	----
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

CPU (%) 0 Vdroop (%) -0.6 CPU TEL (V) 1.088 CPU VID (V) 1.142 CPU TDC (A) 2.3 CPU EDC (A) 60.3 CPU PPT (W) 34.5 LOAD TYPE IDLE

DIAGNOSTIC SETTINGS			
CORE#	ON/OFF	CORE#	ON/OFF
C01	<input checked="" type="checkbox"/>	C07	<input checked="" type="checkbox"/>
C02	<input checked="" type="checkbox"/>	C08	<input checked="" type="checkbox"/>
C03	<input checked="" type="checkbox"/>	C09	<input checked="" type="checkbox"/>
C04	<input checked="" type="checkbox"/>	C10	<input checked="" type="checkbox"/>
C05	<input checked="" type="checkbox"/>	C11	<input checked="" type="checkbox"/>
C06	<input checked="" type="checkbox"/>	C12	<input checked="" type="checkbox"/>

DIAGNOSTIC SETTINGS

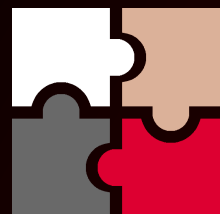
- Profile creation
- Preheating phase
- Target AVX1 PPT (W) 145
- Target AVX1 temp. (°C) 75
- Target AVX2 PPT (W) 145
- Target AVX2 temp. (°C) 75
- Find best voltages Disabled

DIAGNOSTIC SETTINGS

- CORE CO testing
- CCD CO testing
- Enhance accuracy
- Safe CO range
- Equalize CO in CCD
- Turn Off PC after diagnostic
- CO diagnostic mode SSE

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 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:42:50

CCD1	30.4°	CCD2	28.3°	CCD3	----	CCD4	----
C01: 0 162		C07: 0 141		C10: 907 133			
C02: 0 158		C08: 165 145		C11: 0 150			
C03: 0 170		C09: 0 154		C12: 314 137			
---		---		---			

CPU (%) 0 Vdroop (%) 0.1 CPU TEL (V) 1.034 CPU VID (V) 1.035 CPU TDC (A) 1.9 CPU EDC (A) 58.6 CPU PPT (W) 33.9 LOAD TYPE IDLE

DIAGNOSTIC SETTINGS			
CORE#	ON/OFF	CORE#	ON/OFF
C01	<input checked="" type="checkbox"/>	C07	<input checked="" type="checkbox"/>
C02	<input checked="" type="checkbox"/>	C08	<input checked="" type="checkbox"/>
C03	<input checked="" type="checkbox"/>	C09	<input checked="" type="checkbox"/>
C04	<input checked="" type="checkbox"/>	C10	<input checked="" type="checkbox"/>
C05	<input checked="" type="checkbox"/>	C11	<input checked="" type="checkbox"/>
C06	<input checked="" type="checkbox"/>	C12	<input checked="" type="checkbox"/>

DIAGNOSTIC SETTINGS

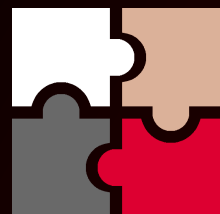
- Profile creation
- Preheating phase
- Target AVX1 PPT (W) 145
- Target AVX1 temp. (°C) 75
- Target AVX2 PPT (W) 145
- Target AVX2 temp. (°C) 75
- Find best voltages CUSTOM

DIAGNOSTIC SETTINGS

- CORE CO testing
- CCD CO testing
- Enhance accuracy
- Safe CO range
- Equalize CO in CCD
- Turn Off PC after diagnostic
- CO diagnostic mode SSE

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 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:42:50

CCD1		51.5°	CCD2		49.8°	CCD3		----	CCD4		----
C01	4300	162	C04	4300	166	----	----	----	----	----	----
C02	4299	158	C05	4300	174	----	----	----	----	----	----
C03	4300	170	C06	4300	174	----	----	----	----	----	----
----	----	----	----	----	----	----	----	----	----	----	----

CPU (%) 100 Vdroop (%) 4.8 CPU TEL (V) 1.046 CPU VID (V) 1.1 CPU TDC (A) 71.9 CPU EDC (A) 140 CPU PPT (W) 116 LOAD TYPE AVX1

CCD1: 4150MHz 4.1 MHz/mV 83 MHz/W
 CCD2: 4099MHz 4.05 MHz/mV 88 MHz/W
 22:04:37: STEP#9
 TEL: 1033mV VID: 1100mV TEMPERATURE: 60.2°C POWER: 138.3W
 CCD1: 4200MHz 4.07 MHz/mV 79 MHz/W
 CCD2: 4125MHz 3.99 MHz/mV 85 MHz/W
 22:05:07: STEP#10
 TEL: 1040mV VID: 1112mV TEMPERATURE: 62.1°C POWER: 144.2W
 CCD1: 4200MHz 4.04 MHz/mV 73 MHz/W
 CCD2: 4150MHz 3.99 MHz/mV 83 MHz/W

The power limit has been reached: 144.2W
 Voltage you are looking for: 1112mV
 Best voltage: 1012mV
 Optimal voltage: 1050mV

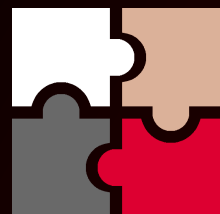
22:05:10: The search for the ideal voltage for the AVX1 has begun

25%

STOP THE PROCESS

Peak/avg response speed (ms) 20.3 / 11.1

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 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:42:50

CCD1	75.2°	CCD2	33.8°	CCD3	----	CCD4	----
C01: 0 162		C07: 0 141		C10: 715 133		----	
C02: 648 158		C08: 148 145		C11: 0 150		----	
C03: 0 170		C09: 0 154		C12: 348 137		----	
----		----		----		----	

CPU (%) 8.3 Vdroop (%) 1.5 CPU TEL (V) 1.348 CPU VID (V) 1.369 CPU TDC (A) 25.3 CPU EDC (A) 140 CPU PPT (W) 69.1 LOAD TYPE FMA3

22:13:12: Step: 1
CORE#5 BASE FREQ: 4825MHz REAL FREQ: 4825MHz
22:13:12: Saving intermediate values...
22:13:21: Test#1
CORE#5 CO: -12 DELTA: 1 TEMPERATURE: 75°C
22:14:02: Saving intermediate values...
22:14:13: Test#2
22:14:54: Saving intermediate values...
22:15:06: Test#3

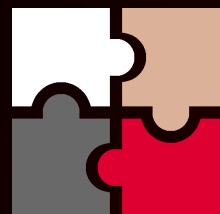
22:15:51: Step: 2
CORE#5 BASE FREQ: 4825MHz REAL FREQ: 4850MHz
22:15:51: Saving intermediate values...
22:16:00: Test#1
CORE#5 CO: 13 DELTA: 25 TEMPERATURE: 76°C
22:16:41: Saving intermediate values...
22:16:52: Test#2

45%

STOP THE PROCESS

Peak/avg response speed (ms) 12.1 / 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 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:42:50

CCD1	32°	CCD2	30.1°	CCD3	----	CCD4	----
C01 152 162		C07 0 141		C10 2024 133			
C02 0 158		C08 0 145		C11 0 150			
C03 0 170		C09 0 154		C12 466 137			
---		---		---			

CPU (%) 0 Vdroop (%) 0.1 CPU TEL (V) 1.019 CPU VID (V) 1.027 CPU TDC (A) 2.2 CPU EDC (A) 43.2 CPU PPT (W) 34.4 LOAD TYPE IDLE

DIAGNOSTIC SETTINGS			
CORE#	ON/OFF	CORE#	ON/OFF
C01	<input type="checkbox"/>	C07	<input type="checkbox"/>
C02	<input type="checkbox"/>	C08	<input type="checkbox"/>
C03	<input type="checkbox"/>	C09	<input type="checkbox"/>
C04	<input type="checkbox"/>	C10	<input type="checkbox"/>
C05	<input checked="" type="checkbox"/>	C11	<input type="checkbox"/>
C06	<input checked="" type="checkbox"/>	C12	<input type="checkbox"/>

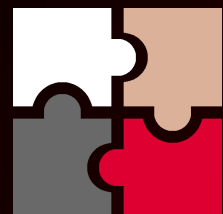
Profile creation Preheating phase

Target AVX1 PPT (W) 145 Target AVX1 temp. (°C) 75
Target AVX2 PPT (W) 145 Target AVX2 temp. (°C) 75
Find best voltages Disabled

CORE CO testing CCD CO testing
Enhance accuracy Safe CO range
Equalize CO in CCD Turn Off PC after diagnostic
CO diagnostic mode SSE

MAIN SETTINGS

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



PROJECT HYDRA – QUICK START, HYBRID OC

STEP 1:

Under the **HYBRID OC** tab, press the **ACTIVATE PROFILES** button to activate the enabled profiles. This button acts as a switch and will also serve to **DEACTIVATE PROFILES**. The state of the button is saved automatically.

The active profile is **highlighted red** in the profile table. The **STATS** column shows the statistics of the number profile activations.

Changing any of the parameters in this table requires that you first disable the profiles using the **DEACTIVATE PROFILES** button.

You can see and edit the CO tables for the profiles by pressing the **CO VALUES** button.

HYDRA 1.0C PRO

OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:42:50

CCD1			55.7°			CCD2			53.7°			CCD3			----			CCD4			----		
C01	4674	162	C04	4674	166	C07	4525	141	C10	4525	133	----	----	----	----	----	----	----	----	----	----	----	----
C02	4674	158	C05	4675	174	C08	4525	145	C11	4525	150	----	----	----	----	----	----	----	----	----	----	----	----
C03	4674	170	C06	4675	174	C09	4525	154	C12	4525	137	----	----	----	----	----	----	----	----	----	----	----	----
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

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	4850	4725	-	-	<input checked="" type="checkbox"/>	18
3T-4T	<input checked="" type="checkbox"/>	1375	4825	4700	-	-	<input checked="" type="checkbox"/>	0
5T-6T	<input checked="" type="checkbox"/>	1325	4750	4625	-	-	<input checked="" type="checkbox"/>	0
7T-9T	<input checked="" type="checkbox"/>	1325	4700	4550	-	-	<input checked="" type="checkbox"/>	0
10T-12T	<input checked="" type="checkbox"/>	1275	4625	4475	-	-	<input checked="" type="checkbox"/>	1
ALL (AVX2)	<input checked="" type="checkbox"/>	1225	4550	4425	-	-	<input checked="" type="checkbox"/>	1
ALL (FMA3)	<input checked="" type="checkbox"/>	1050	4025	3975	-	-	<input checked="" type="checkbox"/>	0
ALL (GAME)	<input checked="" type="checkbox"/>	1300	4725	4550	-	-	<input checked="" type="checkbox"/>	0

DEACTIVATE PROFILES

SAVE PROFILES

CO VALUES

CREATE BACKUP

LOAD BACKUP

UNDERVOLT

NORMAL

OC

XOC

STATUS : profiles are successfully activated!

HYBRID OC

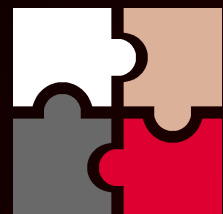
SETTINGS

LOGGING

DIAGNOSTIC

BOOST TEST

COMPARE



PROJECT HYDRA – QUICK START, HYBRID OC

STEP 2:

As previously mentioned, the CO tables are designed to change the resulting frequency (frequency curve relative to voltage). The unit of measure is millivolts (mV).

You can change the resulting frequency for both CCDs in real-time without deactivating the profiles by pressing the "+" and "-" buttons. You can also change the CO value for each core individually in real-time. Once satisfied with the results press the **SAVE PROFILES** button.

A key feature of HYDRA is the real-time analysis of the **bottle-neck CO**. The cores that are highlighted in red prevent frequency growth for the entire CCD or CORE, i.e. these are the worst cores. This mechanism will easily help you calibrate the CO table to achieve a higher frequency.

HYDRA 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:42:50

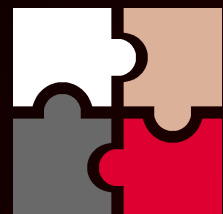
CCD	Temp
CCD1	55.6°
CCD2	54.3°
CCD3	----
CCD4	----

CPU (%)	Vdroop (%)	CPU TEL (V)	CPU VID (V)	CPU TDC (A)	CPU EDC (A)	CPU PPT (W)	LOAD TYPE
100	5.2	1.167	1.225	81.4	140	126.2	AVX1

CO FOR LOW-THREAD LOAD				CO FOR MULTI-THREAD LOAD			
CORE#	CO	CORE#	CO	CORE#	CO	CORE#	CO
C01	211	C07	147	C01	51	C07	46
C02	217	C08	204	C02	90	C08	52
C03	265	C09	122	C03	58	C09	40
C04	220	C10	175	C04	62	C10	68
C05	92	C11	150	C05	33	C11	34
C06	82	C12	178	C06	44	C12	54

STATUS : profiles are successfully activated!

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



PROJECT HYDRA – QUICK START, HYBRID OC

STEP 2:

Want more frequency? Increase the highlighted value. If you want more stability, decrease the highlighted value. The step for the left table (#1) is 15, for the right (#2) - 10.

You may also find information on what core caused a crash under the **LOGGING** tab. Here you will find information on which cores crashed, and recommended actions.

For your convenience, you can save and load intermediate profiles with the **CREATE BACKUP** and **LOAD BACKUP** buttons. The files that are generated are compatible between all versions of HYDRA.

HYDRA 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:42:50

CCD1 55.6°				CCD2 54.3°				CCD3 ----				CCD4 ----			
C01	4646	162	C04	4646	166	C07	4524	141	C10	4525	133	---	---	---	---
C02	4646	158	C05	4646	174	C08	4524	145	C11	4524	150	---	---	---	---
C03	4646	170	C06	4578	174	C09	4525	154	C12	4525	137	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

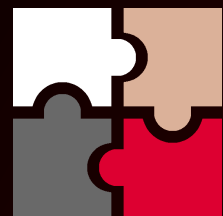
CPU (%) 100 Vdroop (%) 5.2 CPU TEL (V) 1.167 CPU VID (V) 1.225 CPU TDC (A) 81.4 CPU EDC (A) 140 CPU PPT (W) 126.2 LOAD TYPE AVX1

CO FOR LOW-THREAD LOAD				CO FOR MULTI-THREAD LOAD			
CORE#	CO	CORE#	CO	CORE#	CO	CORE#	CO
C01	211	C07	147	C01	51	C07	46
C02	217	C08	204	C02	90	C08	52
C03	265	C09	122	C03	58	C09	40
C04	220	C10	175	C04	62	C10	68
C05	92	C11	150	C05	33	C11	34
C06	82	C12	178	C06	44	C12	54

DEACTIVATE PROFILES
SAVE PROFILES
TO PROFILES
CREATE BACKUP
LOAD BACKUP

STATUS : profiles are successfully activated!

HYBRID OC SETTINGS LOGGING DIAGNOSTIC BOOST TEST COMPARE



PROJECT HYDRA – QUICK START, HYBRID OC

STEP 3:

If you are satisfied with your profiles, you may want to enable HYDRA upon Windows startup. Go to the **SETTINGS** page and enable **Auto-load APP with OS**.

NOTE: Do not enable this option for while running Diagnostics - “Phoenix” will automatically recover upon a crash. Doing so will break the continuation of diagnostics.

All settings changed here are saved automatically.

HYDRA 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:42:50

CCD1	59.3°	CCD2	57.6°	CCD3	----	CCD4	----
C01 4650 162		C07 4500 141		----		----	
C02 4650 158		C08 4500 145		----		----	
C03 4650 170		C09 4500 154		----		----	
----		C10 4500 133		----		----	
----		C11 4500 150		----		----	
----		C12 4500 137		----		----	

CPU (%) 100 Vdroop (%) 5.6 CPU TEL (V) 1.157 CPU VID (V) 1.225 CPU TDC (A) 84.2 CPU EDC (A) 140 CPU PPT (W) 129.8 LOAD TYPE AVX1

MAIN SETTINGS

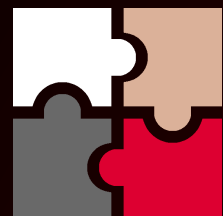
- Auto-load APP with OS
- Event notifications
- Auto-check update
- Pop-up tips
- Clear standby cache
- Clear standby cache (min) 4
- GUI refresh (ms) 1000
- HYDRA priority A-normal

SAFETY SYSTEM SETTINGS

- Max PPT (W) 170
- Max EDC (A) 170
- Max TDC (A) 140
- Max temperature (°C) 95

DIAGNOSTIC SETTINGS HYBRID OC SETTINGS

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



PROJECT HYDRA – QUICK START, HYBRID OC

TIPS AND TRICKS:

OC response speed - this parameter determines the response time at which the profile/frequency is activated. The optimal value is 8-15ms. The minimum value is 6 ms. A lower value allows you to more accurately evaluate the current state of the cores in order to adjust the frequency. Lower values will also cause HYDRA to use more CPU.

Core activation trigger – C0 core state. The utilization condition under which the core should receive maximum frequency. The recommended value is >50%. With lower values, cores that process background tasks or are idle will be considered active and will activate. This has a negative effect on low-thread performance.

HYDRA 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:42:50

CCD1		32.4°		CCD2		31.7°		CCD3		----		CCD4		----	
C01	0	162	C04	0	166	C07	0	141	C10	3124	133	----	----	----	----
C02	0	158	C05	447	174	C08	283	145	C11	0	150	----	----	----	----
C03	0	170	C06	192	174	C09	0	154	C12	361	137	----	----	----	----
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

CPU (%) 2.8 Vdroop (%) 0.1 CPU TEL (V) 1.099 CPU VID (V) 1.1 CPU TDC (A) 2.7 CPU EDC (A) 113 CPU PPT (W) 34.8 LOAD TYPE SSE

MAIN SETTINGS

HYBRID OC SETTINGS

- FREQUENCY LOCK mode
- HEAVY mode
- CO table #2 for GAME
- Frequency limit 5100
- GPU CORE trigger (%) 25
- GPU MEMORY trigger (%) 8
- GAME CO offset 0

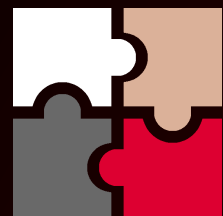
HYBRID OC SETTINGS

- OC response speed (ms) 8
- Core activation trigger (%) 50
- AVX1 CO offset 0
- AVX1 CAC threshold (%) 12
- FMA3 CAC threshold (%) 24
- Holding time MT (ms) 40
- Holding time LT (ms) 40

HYBRID OC SETTINGS (highlighted in green):

- OC response speed (ms): 8
- Core activation trigger (%): 50

Navigation: HYBRID OC | **SETTINGS** | LOGGING | DIAGNOSTIC | BOOST TEST | COMPARE



PROJECT HYDRA – QUICK START, HYBRID OC

TIPS AND TRICKS:

AVX1 CAC threshold and FMA3 CAC threshold

– Ryzen processors evaluate the load type using EDC throttling info, conventionally referred to as the “CAC” trigger. HYDRA allows to automatically adjust the frequency depending on the type of load. Light (SSE), medium (AVX1) and heavy (AVX2/FMA3). By default, the optimal thresholds are already defined, but the user has the ability to adjust this.

Be careful, as too low AVX1 CAC thresholds can increase the aggressiveness of the boost in ultra-light tasks (idle state too). You may end up crashing the system (reboot). The optimal value is 12.

AVX1 CO offset - determines the size of the positive CO offset relative to CO table #2 for AVX1 tasks. That is, for tasks of “medium difficulty” you can increase the boost. The optimal value is between 0 and 30. If you experience issues with stability, use 0.

HYDRA 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:42:50

CCD1	32.4°	CCD2	31.7°	CCD3	----	CCD4	----
C01 0 162	C04 0 166	C07 0 141	C10 3124 133	----	----	----	----
C02 0 158	C05 447 174	C08 283 145	C11 0 150	----	----	----	----
C03 0 170	C06 192 174	C09 0 154	C12 361 137	----	----	----	----
----	----	----	----	----	----	----	----

CPU (%) 2.8 Vdroop (%) 0.1 CPU TEL (V) 1.099 CPU VID (V) 1.1 CPU TDC (A) 2.7 CPU EDC (A) 113 CPU PPT (W) 34.8 LOAD TYPE SSE

MAIN SETTINGS

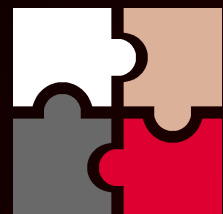
HYBRID OC SETTINGS

FREQUENCY LOCK mode	<input checked="" type="checkbox"/>
HEAVY mode	<input type="checkbox"/>
CO table #2 for GAME	<input checked="" type="checkbox"/>
Frequency limit	5100
GPU CORE trigger (%)	25
GPU MEMORY trigger (%)	8
GAME CO offset	0

HYBRID OC SETTINGS

OC response speed (ms)	8
Core activation trigger (%)	50
AVX1 CO offset	0
AVX1 CAC threshold (%)	12
FMA3 CAC threshold (%)	24
Holding time MT (ms)	40
Holding time LT (ms)	40

HYBRID OC SETTINGS LOGGING DIAGNOSTIC BOOST TEST COMPARE



PROJECT HYDRA – QUICK START, HYBRID OC

TIPS AND TRICKS:

Holding time MT – the duration (ms) of which the profile (AVX2 or FMA3) remains active after the load has partially or completely disappeared. Allows you to reduce the number of false profile reactivations due to impulse load.

Holding time LT – the duration (ms) of which the profile (low-thread load) remains active after the load has partially or completely disappeared. Allows you to reduce the number of false profile reactivations due to impulse load.

NOTE: larger values will have a negative effect on the speed of activation of the optimal profile (delayed profile switching).

HYDRA 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:42:50

CCD1	32.4°	CCD2	31.7°	CCD3	----	CCD4	----
C01: 0 162	C04: 0 166	C07: 0 141	C10: 3124 133	---	---	---	---
C02: 0 158	C05: 447 174	C08: 283 145	C11: 0 150	---	---	---	---
C03: 0 170	C06: 192 174	C09: 0 154	C12: 361 137	---	---	---	---
---	---	---	---	---	---	---	---

CPU (%) 2.8 Vdroop (%) 0.1 CPU TEL (V) 1.099 CPU VID (V) 1.1 CPU TDC (A) 2.7 CPU EDC (A) 113 CPU PPT (W) 34.8 LOAD TYPE SSE

MAIN SETTINGS

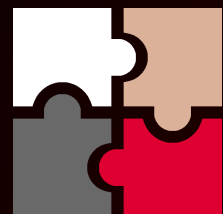
HYBRID OC SETTINGS

- FREQUENCY LOCK mode:
- HEAVY mode:
- CO table #2 for GAME:
- Frequency limit: 5100
- GPU CORE trigger (%): 25
- GPU MEMORY trigger (%): 8
- GAME CO offset: 0

HYBRID OC SETTINGS

- OC response speed (ms): 8
- Core activation trigger (%): 50
- AVX1 CO offset: 0
- AVX1 CAC threshold (%): 12
- FMA3 CAC threshold (%): 24
- Holding time MT (ms): 40
- Holding time LT (ms): 40

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



PROJECT HYDRA – QUICK START, HYBRID OC

TIPS AND TRICKS:

GPU CORE trigger - GPU core usage threshold at which the GAME profile will be activated.

GPU MEMORY trigger - GPU memory usage threshold at which the GAME profile will be activated.

NOTE: thresholds that are too low may trigger may cause unwanted GAME profile activations during usage of browsers or other hardware-accelerated applications.

CO table #2 for GAME - CO table #2 is used by default, but you can also try to use the first table for better performance. Using the first table increases system instability.

GAME CO offset - determines the size of the positive CO offset relative to CO table #2 or #1 for the GAME profile. You can increase the frequency or improve stability.

HYDRA 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:42:50

CCD1	32.4°	CCD2	31.7°	CCD3	----	CCD4	----
C01 0 162	C04 0 166	C07 0 141	C10 3124 133	---	---	---	---
C02 0 158	C05 447 174	C08 283 145	C11 0 150	---	---	---	---
C03 0 170	C06 192 174	C09 0 154	C12 361 137	---	---	---	---
---	---	---	---	---	---	---	---

CPU (%) 2.8 Vdroop (%) 0.1 CPU TEL (V) 1.099 CPU VID (V) 1.1 CPU TDC (A) 2.7 CPU EDC (A) 113 CPU PPT (W) 34.8 LOAD TYPE SSE

MAIN SETTINGS

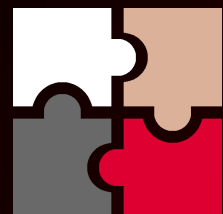
HYBRID OC SETTINGS

- FREQUENCY LOCK mode
- HEAVY mode
- CO table #2 for GAME**
- Frequency limit 5100
- GPU CORE trigger (%) 25
- GPU MEMORY trigger (%) 8
- GAME CO offset 0

HYBRID OC SETTINGS

- OC response speed (ms) 8
- Core activation trigger (%) 50
- AVX1 CO offset 0
- AVX1 CAC threshold (%) 12
- FMA3 CAC threshold (%) 24
- Holding time MT (ms) 40
- Holding time LT (ms) 40

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



PROJECT HYDRA – QUICK START, HYBRID OC

TIPS AND TRICKS:

HEAVY mode - this mode is specially designed for workstations that need extra stability, in particular, if AVX2 and FMA3 are used.

FREQUENCY LOCK mode – forced frequency lock mode on inactive cores. Allows you to increase performance when switching contexts frequently. Read more in the document “**HOW THE BOOST WORKS**”.

Frequency limit - this mechanism allows you to limit the maximum boost frequency. The need for limiting occurs when the system reboots during a very light load or idle. You may also control this with CO table #1.

HYDRA 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 21:42:50

CCD1	32.4°	CCD2	31.7°	CCD3	----	CCD4	----
C01 0 162	C04 0 166	C07 0 141	C10 3124 133	---	---	---	---
C02 0 158	C05 447 174	C08 283 145	C11 0 150	---	---	---	---
C03 0 170	C06 192 174	C09 0 154	C12 361 137	---	---	---	---
---	---	---	---	---	---	---	---

CPU (%) 2.8 Vdroop (%) 0.1 CPU TEL (V) 1.099 CPU VID (V) 1.1 CPU TDC (A) 2.7 CPU EDC (A) 113 CPU PPT (W) 34.8 LOAD TYPE SSE

MAIN SETTINGS

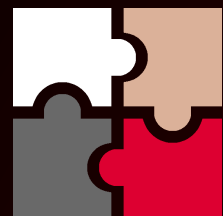
HYBRID OC SETTINGS

- FREQUENCY LOCK mode
- HEAVY mode
- CO table #2 for GAME
- Frequency limit 5100
- GPU CORE trigger (%) 25
- GPU MEMORY trigger (%) 8
- GAME CO offset 0

HYBRID OC SETTINGS

- OC response speed (ms) 8
- Core activation trigger (%) 50
- AVX1 CO offset 0
- AVX1 CAC threshold (%) 12
- FMA3 CAC threshold (%) 24
- Holding time MT (ms) 40
- Holding time LT (ms) 40

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



PROJECT HYDRA – QUICK START, HYBRID OC

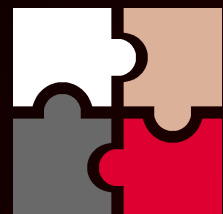
TIPS AND TRICKS:

Some benchmarks (with built-in monitoring) can negatively affect the performance of HYDRA and the system as a whole. To solve this problem, the user only needs to add the application to the list of programs which will provoke HYDRA to increase its priority in the system. As a result, the user will get extra performance while changing the priority of HYDRA has no negative impact on the system.

The user can add any application to the configurator file himself. An example can be clearly seen in the picture.

The screenshot displays a Windows desktop environment with several windows open:

- File Explorer:** Shows the directory path `HYDRA > HYDRA > bin > Debug`. A list of files is shown, including various DLLs and configuration files. The file `RealTimePriorityList.ini` is highlighted with a green box.
- Cinebench aida64:** A small window showing the application name and `cpuz` listed below it, with a green box around the text.
- Task Manager:** The 'Processes' tab is active, showing a list of running applications. The process `cpuz.exe` is highlighted with a green box.
- CPU-Z:** Shows detailed CPU information for an AMD Ryzen 9 5900X. The 'Cores' and 'Threads' are set to 12 and 24, respectively.



PROJECT HYDRA – QUICK START, HYBRID OC

TIPS AND TRICKS:

Also the user can configure the basic priority of HYDRA in the settings section. The default value is optimal (**A-normal**).

HYDRA 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 23:41:31

CCD1	30°	CCD2	29.6°	CCD3	----	CCD4	----
C01	0	162	C04	215	166	---	---
C02	0	158	C05	353	174	---	---
C03	0	170	C06	0	174	---	---
---	---	---	---	---	---	---	---

CPU (%) 1.4 Vdroop (%) 0 CPU TEL (V) 1.1 CPU VID (V) 1.1 CPU TDC (A) 0.5 CPU EDC (A) 112.6 CPU PPT (W) 31.8 LOAD TYPE IDLE

MAIN SETTINGS

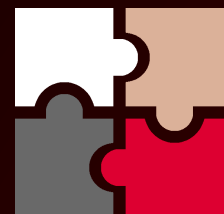
- Auto-load APP with OS
- Event notifications
- Auto-check update
- Pop-up tips
- Clear standby cache
- Clear standby cache (min) 4
- GUI refresh (ms) 1000
- HYDRA priority **A-normal** ▼

SAFETY SYSTEM SETTINGS

- Max PPT (W) 170
- Max EDC (A) 170
- Max TDC (A) 140
- Max temperature (°C) 95

DIAGNOSTIC SETTINGS **HYBRID OC SETTINGS**

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



PROJECT HYDRA – BOOST TEST

BOOST TEST

Diagnostic test which will check the single-threaded performance of each core individually. Fully compatible with AMD Curve Optimizer, HYDRA HYBRID OC and PBO/PB2.

HYDRA 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 23:41:31

CCD1	30.6°	CCD2	28.8°	CCD3	----	CCD4	----
C01	0	162	C04	0	166	---	---
C02	0	158	C05	133	174	---	---
C03	0	170	C06	0	174	---	---
---	---	---	---	---	---	---	---

CPU (%) 0 Vdroop (%) 0 CPU TEL (V) 1.099 CPU VID (V) 1.1 CPU TDC (A) 0.6 CPU EDC (A) 112.7 CPU PPT (W) 32.3 LOAD TYPE SSE

23:45:14: Boost testing finished!

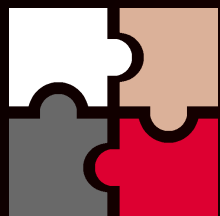
HYDRA BOOST TESTER RESULTS				
CORE	FREQUENCY	VID	POWER	TEMP
C01	F 5024	V 1.374	W 12.52	T 56.24
C02	F 5023	V 1.375	W 12.66	T 56.21
C03	F 4998	V 1.375	W 12.71	T 56.14
C04	F 5024	V 1.375	W 12.34	T 54.29
C05	F 5024	V 1.375	W 12.69	T 58.4
C06	F 5000	V 1.375	W 12.83	T 59.3
C07	F 4875	V 1.375	W 11.15	T 51.8
C08	F 4867	V 1.375	W 10.55	T 51.1
C09	F 4852	V 1.375	W 11.1	T 52.35
C10	F 4874	V 1.375	W 12.33	T 53.23
C11	F 4874	V 1.375	W 10.7	T 52.44
C12	F 4838	V 1.375	W 10.87	T 54.78

0%

STOP THE PROCESS

Peak/avg response speed (ms) 11.9 / 8.5

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



PROJECT HYDRA – STATIC OC + STANDARD BOOST

TIPS AND TRICKS:

You have the ability to use both the standard boost (with Curve Optimizer too) and the HYDRA profiles at the same time.

To do this, disable the profiles you are not interested in, enable or disable dynamic mode for the selected profiles and then click **ACTIVATE PROFILES**.

NOTE: don't forget to use the **SAVE PROFILES** button.

HYDRA 1.0C PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-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 10/30/2021 23:41:31

CCD1		30°		CCD2		28.7°		CCD3		----		CCD4		----	
C01	0	162	C04	0	166	C07	0	141	C10	2723	133	----	----	----	----
C02	0	158	C05	0	174	C08	358	145	C11	0	150	----	----	----	----
C03	0	170	C06	0	174	C09	0	154	C12	387	137	----	----	----	----
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

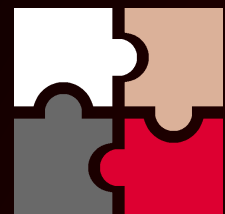
CPU (%) 0 Vdroop (%) 0.1 CPU TEL (V) 1.099 CPU VID (V) 1.1 CPU TDC (A) 2 CPU EDC (A) 112.6 CPU PPT (W) 33.9 LOAD TYPE SSE

THREADS	ENABLED	VID	CCD1	CCD2	CCD3	CCD4	DYNAMIC	STATS
1T-2T	<input type="checkbox"/>	1375	4850	4725	-	-	<input type="checkbox"/>	0
3T-4T	<input type="checkbox"/>	1375	4825	4700	-	-	<input type="checkbox"/>	0
5T-6T	<input type="checkbox"/>	1325	4750	4625	-	-	<input type="checkbox"/>	0
7T-9T	<input type="checkbox"/>	1325	4700	4550	-	-	<input type="checkbox"/>	0
10T-12T	<input checked="" type="checkbox"/>	1275	4625	4475	-	-	<input type="checkbox"/>	3
ALL (AVX2)	<input checked="" type="checkbox"/>	1225	4550	4425	-	-	<input type="checkbox"/>	0
ALL (FMA3)	<input checked="" type="checkbox"/>	1050	4025	3975	-	-	<input type="checkbox"/>	0
ALL (GAME)	<input checked="" type="checkbox"/>	1300	4725	4550	-	-	<input type="checkbox"/>	0

DEACTIVATE PROFILES
SAVE PROFILES
CO VALUES
CREATE BACKUP
LOAD BACKUP

UNDERVOLT NORMAL OC XOC STATUS : profiles are successfully activated!

HYBRID OC SETTINGS LOGGING DIAGNOSTIC BOOST TEST COMPARE



PROJECT HYDRA – UEFI CURVE OPTIMIZER

UEFI CURVE OPTIMIZER

HYDRA is also able to provide information about CO values for UEFI after diagnostics. This is optimal for situations where the user only wants to use the standard frequency management tools.

It is recommended to use the SAFE preset because it can guarantee the user stability in any task.

NOTE: the best cores (the highest CPPC value) have the lowest CO value. It's natural. There is also a small reserve for these cores and you can combine SAFE and FAST presets.

HYDRA 1.0A PRO
OC-SANDBOX FOR ZEN3

AMD Ryzen 9 5900X 12-Core Processor
MSI MEG B550 UNIFY-X (MS-7D13) BIOS ver. A.41 SMU ver. 56.52.00
Microsoft Windows NT 6.2.9200.0 09/15/2021 11:37:04

CCD1	43°	CCD2	39.1°	CCD3	----	CCD4	----
C01	0	162	C04	0	166	---	---
C02	0	158	C05	119	174	---	---
C03	0	170	C06	393	174	---	---
---	---	---	---	---	---	---	---

CPU (%) 2.4 Vdroop (%) -2.7 CPU TEL (V) 1.265 CPU VID (V) 1.232 CPU TDC (A) 14 CPU EDC (A) 133.2 CPU PPT (W) 54.9 LOAD TYPE SSE

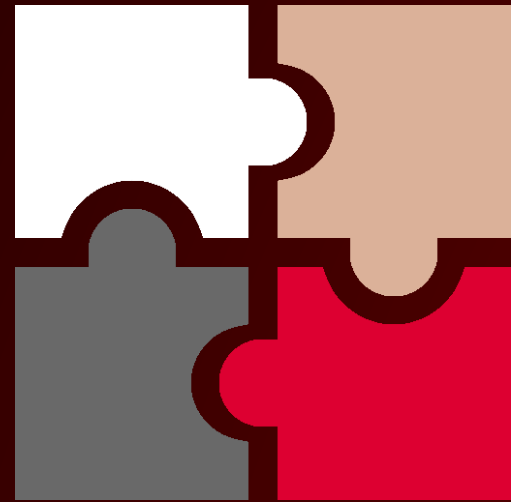
CURVE OPTIMIZER values for BIOS
(If you do not plan to use HYDRA)

C01	SAFE CO: -30	FAST CO: -30
C02	SAFE CO: -30	FAST CO: -30
C03	SAFE CO: -30	FAST CO: -30
C04	SAFE CO: -30	FAST CO: -30
C05	SAFE CO: -20	FAST CO: -29
C06	SAFE CO: -5	FAST CO: -14
C07	SAFE CO: -24	FAST CO: -30
C08	SAFE CO: -30	FAST CO: -30
C09	SAFE CO: -20	FAST CO: -28
C10	SAFE CO: -29	FAST CO: -30
C11	SAFE CO: -25	FAST CO: -30
C12	SAFE CO: -29	FAST CO: -30

Max CPU Boost Clock Override: 125MHz

0% STOP THE PROCESS

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



PROJECT HYDRA

OC-SANDBOX FOR ZEN3+ PROCESSORS

NEW FEATURES EVERY MONTH

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