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GIGABYTE AM4 Guide to Overclocking AMD Ryzen (Pinnacle Ridge)-Series Processors

Chapter 1: Intro

Pinnacle Ridge establishes the return of AMD

With the release of Ryzen[™] last year, AMD processors were back in the competition. Pinnacle Ridge, built on the AM4 socket, brings a larger performance improvement, bigger overclocking headroom and it fixes many bugs the first Ryzen processors had—all at a competitive price. Read on to learn how to get even more value out of your AMD Pinnacle Ridge processor.

Chapter 2: How to Overclock Your AMD Ryzen 2700X CPU

For reference, we are using a GIGABYTE X470 AORUS Gaming 7 WIFI motherboard, an 2700X AMD Ryzen 7 processor, 16GB G.Skill DDR4 Trident Z 3600Mhz, and a liquid cooler, the Lepa AquaChanger 240 All-In-One.

Based on our testing, most Ryzen 2700X processors can hit around 4.2GHz on All-In-One coolers using a 1.25-1.35V Vcore. In this guide, we will be targeting a frequency of 4.2GHz from a stock frequency of 3.7 GHz.

Disclaimer: Overclocking will technically void your warranty. While it's usually safe, there is potential to damage the chip if you push voltages too high.

Taking Your CPU to the Next Level – Overclocking

Simply follow the steps below and you'll be enjoying your overclocked Ryzen powerhouse in no time.

Although Ryzen 7 2700X has a Max Boost frequency of 4.3GHz, that only applies on one core. Our goal is to overclock all the 8 cores of the 2700X at the maximum possible speed. An average past should be able to hit 4.2GHz for prime95, which is our goal.

Step 1: Enter the BIOS

Enter the BIOS by restarting your computer and pressing the "delete" button before the OS launches



Step 2: Enter "Advanced Frequency Settings"

Change your "CPU Clock Ratio" to "42.00". A CPU clock ratio of 42 multiplied by 100 which is our default "Host Clock Value" gives you a frequency of 4200 MHz.

Interesting fact! We noticed that if you look in CPU-Z while running at default clocks, the frequency jumps up and down. This is the power saving settings at work. Once you overclock and increase your "CPU Clock Ratio" to any value about the default setting of "37.00" the measured frequency stops going up and down.

Different from Intel, "CPU Clock Ratio" can be adjusted in increments of 0.25x instead of 1.0x. For example "CPU Clock Ratios" of 37.25, 37.50, 37.75 etc are possible.

Aside from the small steps on the "CPU Clock Ratio" the users have the ability to squeeze every last drop of performance of their parts by adjusting the "Host Clock Value".

For example the CPU comes with a default CPU frequency of 3700 MHz, which means that it has a default "CPU Clock Ratio" of "37.00" and a default "Host Clock Value" of "100". If we want to overclock this CPU to 4166MHz we can simply change the "CPU Clock Ratio" to 41.00 and the "Host Clock Value" to 101.6MHz.

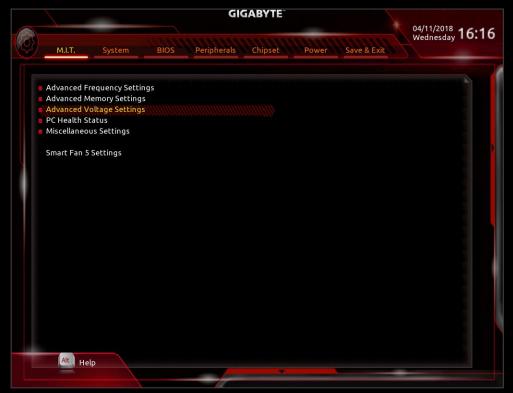
Changing the "Host Clock Ratio" will affect the Memory frequency and the NB frequency.



Step 3: Adjust Your Voltage Settings

Now we have tuned almost all the features and the frequencies of our CPU but in order for the CPU to work at a higher speed, it needs to be supplied with higher voltage.

Go to the starting BIOS page (M.I.T.) and select the "Advanced Voltage Settings" option.



3a. Change CPU Vcore: Raising this helps keeps the system stable at higher CPU frequencies. However, it also increases the amount of heat your CPU produces. We suggest you to keep Vcore from 1.25 to 1.35v when overclocking to around 4.2GHz–however—CPUs differ, some require higher voltages to be stable, some lower. There's a large component of luck involved.

	GI	GABYTE		04/11/2018	16.17
M.I.T. System BI	OS Peripherals	Chipset	ower Save & Exit	04/11/2018 Wednesday	10:17
CPU Vcore		1.30000v	///////1.22500V		
Dynamic Vcore(DVID)		Auto	+0.00000V		
VCORE SOC		Auto	1.10000V		
Dynamic VCORE SOC(DVID)		Auto	+0.00000V		
CPU VDD18		Auto	1.800V		
CPU VDDP		Auto			
CHIPSET CORE 2.5V		Auto	2.500V		
CHIPSET CORE 1.05V		Auto	1.050V		
DRAM Voltage (CH A/B)		Auto	1.200V		
DRAM Termination (CH A/B)		Auto	0.600V		
CPU Vcore Loadline Calibration		Turbo			
VCORE SOC Loadline Calibration		Auto			
Esc Back					
Back	_				1000000

3b. Adjust the Three New Voltage Settings: VCORE SOC, CPU VDD18, CPU VDDP

These are the same settings that exist on previous AMD Chipset motherboards too. For a little extra boost in stability while overclocking we suggest you to change VCORE SOC up to 1.20-1.25 volts when using standard air or liquid cooling. For CPU VDD18, you can adjust it up to 2.1 volts and up to +0.2 volts for CPU VDDP if this is required from the CPU you are testing.

3c. Adjust CPU Loadline Calibration Setting

If you need some extra stability, adjust this setting to either "Turbo" or "Extreme". You may notice that after this adjustment your CPU Vcore is higher.

Step 4: Optimize Your Memory Settings

There are two different methods of optimizing your memory settings, the easy way through the Extreme Memory Profile (X.M.P.) option, and the more difficult way through manually adjusting your ram settings.

4a. Easy Way

Go back to the "M.I.T." starting page. Select "Advanced Memory Settings". Here you see the "Extreme Memory Profile (X.M.P.)" option. Enable it. The system will choose the optimal memory frequency and DRAM timings for you.



4b. More Difficult Way

AMD now supports from the X470 higher memory dividers as when the X370 chipset launches. You should be able to see higher frequencies than 3200 Mhz. Select the frequency that your memory sticks run at. Since X.M.P. is not enabled, your memory timings will be automatically set by the CPU. Next, go back to "M.I.T." and select "Advanced Voltage Settings". Set your DRAM Voltage to your specific memory modules' recommended voltage setting.



Now that you've set your overclocks, it's time to make sure that your system is stable!

Chapter 3: Stability Testing & Results

Congratulations! You have obtained a clock rate of around 4.2 GHz. Now it's time to make sure that it's stable. We're going to use the software below to monitor our system, stability test, and adjust our overclocks.

Prime95 — This is used to stress test our CPU in order to ensure that it's stable in the most taxing of conditions.

CPU-Z – Used to monitor our CPU frequencies. Version 1.84 is preferred.

HWINFO – Used to monitor idle and load temperatures and vcore settings.

How to Stability Test

Step 1: Prepare Stability Testing and Monitoring Applications

Open up CPU-Z, HWiNFO, and Prime95 so you are able to stress test and monitor CPU temperature, frequency, and memory timings all on the same screen.

2. Prime95	2			×
Main thread	ed Options Window Help 10 15:36] Mersenne number primality test program version 29.4 10 15:36] Optimizing for CPU architecture: AMD Zen, L2 cache size: 512 KB, L3 c	ache s	ize: 16	SE MB
< Prime95	Run a Torture Test X Image: Small FFT's (maximum heat, FPU stress, data fits in L2 cache, RAM not tested much) OK Image: Small FFT's (maximum power consumption, some RAM tested) OK Image: Blend (tests some of everything, lots of RAM tested) Cancel Custom Custom Number of torture test threads to run: 16			8
	Min FFT size (in K): 8 Max FFT size (in K): 32 Image: Run FFTs in-place Memory to use (in MB): 0 Time to run each FFT size (in minutes): 5			
For Help, press F1			NUM	

Step 2: Start Prime95

After starting the Prime95 torture test highlight the Prime95 tray icon—all cores should say "self-test", if it shows "not working" that means that specific core has failed to pass the test. Another form of failing the stability test is that your system may simply just reboot or freeze, which means your settings were too aggressive and your CPU has failed the stability test. We normally test Prime95 for 1 hour. This duration can be increased for more assurance. The Small FFTs is considered the most extreme torture test for Prime95 so the other torture test options are more than sufficient as well as practical to use.

Step 3a (Fail) : Close Prime95

Close Prime95 by right clicking the Prime95 icon on the tray bar in the lower right side of your screen and selecting "Exit". This closes Prime95.

Step 3b (Fail): Adjust Frequency or Voltage

Now it's time adjust your frequency or voltage settings. You can do this either through the BIOS or using EasyTune which is available through the GIGABYTE App Center. You have two options: Either increase CPU Vcore or decrease "CPU Clock Control". We recommend you to stay under 90° C on your CPU along with a CPU Vcore below 1.4 volts if possible. After making adjustments go back to Step 1. If it continues to fail, dial down your "CPU Clock Control" until you pass stability testing.

KADRUS 😜	syTune	A					*	
CC Smart Boost	Advanc	ed CPU OC	Adv	anced DDR OC	۹ 'کر	dvanced Power	K Hotk	ey
C Profile	1 2	Lc	ad Profile	Save Prof	ile	Default		
Frequency Host BCLK	100	CPU VCore		Auto	•			
CPU Ratio	42	CPU Vcore		1.29375	v •			
		Dynamic VC	Core(DVID)	0 V	•			
		VCORE SOC		1.24375	v •			
		Dynamic VC	CORE SOC(DVID)	0 V	•			
		CPU VDD18		1.8 V	•			
		CPU VDDP	- 	0 V	•			
		DRAM Voltz	age (CH A/R)					· · · •
X470 AORUS GAMING 7 W	VIFI	AMD Ryzen 7 270 Processor	0X Eight-Core	G Skill Intl		107	Quadro K620	
BIOS: F4a		4181.13 M	HZ	3583.8	MHZ		1058 MHz	

Step 4 (Success): Enjoy Overclock or Increase Frequency

Congratulations, your current overclock is stable. You may want to try for a higher frequency. To do so, experiment with raising your CPU Clock Control and CPU Vcore settings either in BIOS or EasyTune and go back to Step 1 for stability testing to ensure that it's stable.

The below picture shows a 4.2 GHz OC on liquid cooling passing 1 hour of stability testing:

🖬 Prime95 — 🗆	X 🖸 CPU-Z – 🗆 X	HWINFO64 v5.79-3390 Sensor Status	- 🗆 🗙
Test Edit Advanced Options Window Help	CPU Caches Mainboard Memory SPD Graphics Bench About	Sensor Current	Minimum Maximum Avera A
Main thread	Processor Name AMD Ryzen 7 2700x		
	Code Name Pinnacle Ridge Max TDP 105.0 W	CPU [#0]: AMD Ryzen 7 CPU (Tct) 81.5 °C	39.9 °C 81.5 °C 78.2
Worker #1 - Self-Test	Package Societ APPA (1331)	CPU (Tde) 71.5 °C	29.9 °C 71.5 °C 68.2
	Technology 12 nm Core Voltage 1.320 V	CPU Core Voltage (SV12 1.262 V	1.262 V 1.294 V 1.264
Worker #2 - Self-Test	Specification AMD Ryzen 7 2700X Eight-Core Processor	SoC Voltage (SVI2 TFN) 1.225 V	1.225 V 1.231 V 1.225
-	Family F Model 8 Stepping 2	GPU Core Current (SVI2 88.941 A	7.247 A 92.235 A 84.071
Worker #3 - Self-Test	Ext. Family 17 Ext. Model 8 Revision 82	SoC Current (SVI2 TFN) 14.118 A	11.765 A 14.706 A 14.070
	Instructions MMX(+), SSE, SSE2, SSE3, SSSE3, SSE4, 1, SSE4, 2, SSE4A,	CPU Package Power (SMU) 161.647 W	26.863 W 164.655 W 153.573
Worker #4 - Self-Test	x86-64, AMD-V, AES, AVX, AVX2, FMA3, SHA	Core #0 Power (SMU) 16.106 W	0.456 W 17.020 W 14.670
	Clocks (Core #0) Cache	Core #1 Power (SML) 16.267 W	0.166 W 16.407 W 15.239
	Core Speed 4198.56 MHz L1 Data 8 x 32 KBytes 8-way	Core #2 Power (SMU) 15.862 W Core #3 Power (SMU) 16.437 W	0.185 W 16.488 W 15.000 0.242 W 16.483 W 15.359
🖬 Worker #5 - Self-Test	Multipler x 42.0 L1 Inst. 8 x 64KBytes 4-way	Core #3 Power (SMU) 16.437 W	0.242 W 16.463 W 15.359 0.252 W 16.170 W 14.890
	Bus Speed 99.97 MHz Level 2 8 x 512 KBytes 8-way	Core #4 Power (SMU) 16.161 W Core #5 Power (SMU) 16.268 W	0.252 W 16.170 W 14.890 0.229 W 16.505 W 15.095
worker ≠6 - Self-Test	Rated FSB Level 3 2 x 8 MBytes 15-way	Core #6 Power (SMU) 15.909 W	0.312 W 16.269 W 14.706
		Core #5 Power (SMU) 15.909 W	0.312 W 16.269 W 14.706 0.262 W 16.332 W 15.139
Worker #7 - Self-Test	Selection Societ #1 V Cores 8 Threads 16	Core #7 Power (SMU) 16.228 W	0.262 W 16.332 W 15.139 9.376 W 116.447 W 106.173
	Cores Cores	SoC Power (SVI2 TFN) 17.294 W	14.485 W 18.015 W 17.236
Worker #8 - Self-Test	CPU-Z ver. 1.84.0.x64 Tools Validate Close	CPU+SoC Power (SV12 129-582 W	23.861W 133.381W 123.409
Worker #0 - beit- test			20.001 11 200.001 11 220.000
Vorker #9 - Self-Test	@ CPU-Z - C X	GIGABYTE X470 AORUS	
Worker #9 - Self-Test	CPU Caches Mainboard Memory SPD Graphics Bench About	Temperature 1 31 °C	31 °C 31 °C 31
	- General	Temperature 2 36 °C	36 °C 36 °C 36
Worker #10 - Self-Test	Type DDR4 Channel # Dual	Temperature 3 71 °C	30 °C 71 °C 68
	Size 16 Givtes DX Mode	Temperature 4 35 °C	34 °C 35 °C 34
Worker #11 - Self-Test	NO Frequency 1099.0 MHz	Temperature 5 67 °C	44 °C 67 °C 60
	Horrequery 2009/01/14	Vcore 1.332 V	1.296 V 1.368 V 1.334
Worker #12 - Self-Test	Timings	Vccp2 1.740 V	1.728 V 1.895 V 1.750
HONE TE - SEPTEM	DRAM Frequency 1699.0 MHz	2 +3.3V 1.944 V	1.932 V 1.980 V 1.945
_	FS8:DRAM 3:51	9 +5V 3.024 V	3.024 V 3.226 V 3.035
Worker #13 - Self-Test	CAS# Latency (CL) 16.0 docks	1.992 V 4.992 V	4.944 V 5.040 V 4.992
	RAS# to CAS# Delay (IRCD) 16 docks	<	>
Worker #14 - Self-Test	RAS# Precharge (IRP) 16 dods		
Teal	Cycle Time (IRAS) 36 docks		
Worker #15 - Self-Test	Bank Cycle Time (IRC) 52 docks		
	Command Rate (CR) IT	Advanced 🛕 System Alert	-A- Record
Worker #16 - Self-	× CPU-Z - X	Advanced I System Alert	-//- Record
File Options View	-		
	CPU Caches Mainboard Memory SPD Graphics Bench About	dware Monitor Apply	
Processes Performance Apphistory Startup Users Details Services	Motherboard		
el snaphset0007	 Manufacturer Gigabyte Technology Co. Ltd. 	Temperature	
CPU AMD Ryzen 7 2700X Eight-Core Process	Model X470 ACRUS GAMING 7 WIFI-CF Default string	5 🛕 (==) System 1	
99/6 4/21 GH2	Chipset AMD Ryzen SOC Rev. 00	- A - System	31 80 C
% Utilization 19	Southbridge AMD X470 Rev. 51	5 🛕 (=== System 2	32 40 °C — I — A
Memory			
1.8/15/9 GB (11%)	UPCIO ITE IT8686	🔒 🚍 VRM MOS	67 80 °C —— I— A
	6105	5 🛕 😑 EC_TEMP1	
Disk 0 (C)	Brand American Megatrends Inc.		- 4
Disk 0 (C:) 60 seconds	Version F4a	🛕 (=) EC_TEMP2	- 80 °C 🖬 🛕
	0.00.00.00.00		
Utilization Speed Base speed: 425 G	H2 / / / /	s 🛕 🚱 Fan	
Ethernet 99% 4.21 GHz Sockets 1	Graphic Interface		
Not connected Cores: 8	Version PCI-Express	🌯 🏦 (🚍 сри	2455 1000 RPM =
Processes Threads Handles Logical processors: 16	Link Width x16 Max. Supported x16	💈 🛕 🚎 сри орт	
Wi-Fi 127 1791 42986 Virtualization: Disable	ed Side Band Addressing		·

Thermals

We ran tests using a liquid cooling setup at different voltages and frequencies using an AMD Ryzen 7 2700X to show the difference in thermal performance. As you can see with our liquid cooling setup, the temperatures are lower than what we were getting last year using a Ryzen 1800X. This probably allows us to push the processor at a higher speed than last year as well.

Our Liquid Cooling Setup

Liquid cooler: Lepa AquaChanger 240 All-In-One CPU Liquid Cooler Motherboard: AORUS X470 GAMING 7 WIFI

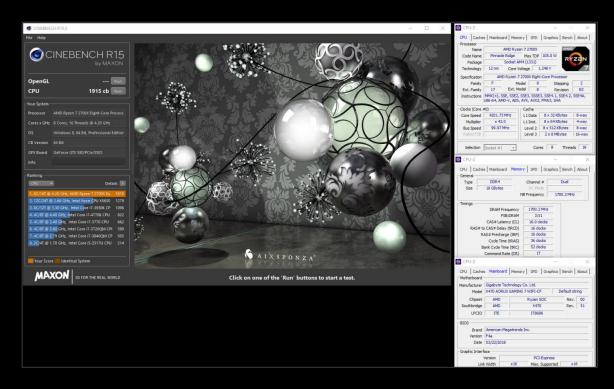
HWiNF064 v5.79-3390 Se	8 <u>-</u>			
Sensor	Current	Minimum	Maximum	Avera _l ^
CPU [#0]: AMD Rvzen 7				
🜡 CPU (Tctl)	81.5 ℃	39.9 ℃	81.5 ℃	78.2
🐻 CPU (Tdie)	71.5 ℃	29.9 °C	71.5 ℃	68.2
CPU Core Voltage (SVI2	1.262 V	1.262 V	1.294 V	1.264
SoC Voltage (SVI2 TFN)	1.225 V	1.225 V	1.231 V	1.225
GPU Core Current (SVI2	88.941 A	7.247 A	92.235 A	84.071
SoC Current (SVI2 TFN)	14.118 A	11.765 A	14.706 A	14.070
CPU Package Power (SMU)	161.647 W	26.863 W	164.655 W	153.573
Gore #0 Power (SMU)	16.106 W	0.456 W	17.020 W	14.670
Gore #1 Power (SMU)	16.267 W	0.166 W	16.407 W	15.239
Gore #2 Power (SMU)	15.862 W	0.185 W	16.488 W	15.000
Core #3 Power (SMU)	16.437 W	0.242 W	16.483 W	15.359
Gore #4 Power (SMU)	16.161 W	0.252 W	16.170 W	14.890
Gore #5 Power (SMU)	16.268 W	0.229 W	16.505 W	15.095
Gore #6 Power (SMU)	15.909 W	0.312 W	16.269 W	14.706
Gore #7 Power (SMU)	16.228 W	0.262 W	16.332 W	15.139
GPU Core Power (SVI2	112.288 W	9.376 W	116.447 W	106.173
SoC Power (SVI2 TFN)	17.294 W	14.485 W	18.015 W	17.236
GPU+SoC Power (SVI2	129.582 W	23.861 W	133.381 W	123.409
GIGABYTE X470 AORUS				
🌡 Temperature 1	31 °C	31 °C	31 °C	31
🜡 Temperature 2	36 °C	36 °C	36 °C	36
🌡 Temperature 3	71 °C	30 °C	71 °C	68
Temperature 4	35 °C	34 °C	35 °C	34
🜡 Temperature 5	67 °C	44 °C	67 °C	60
💡 Vcore	1.332 V	1.296 V	1.368 V	1.334
Vccp2	1.740 V	1.728 V	1.896 V	1.750
9 +3.3V	1.944 V	1.932 V	1.980 V	1.945
	3.024 V	3.024 V	3.226 V	3.035
🖗 +12V	4.992 V	4.944 V	5.040 V	4.992
* <				···· *

Here's a quick table of the temperatures we obtained:

	Stock frequency	4.2 GHz	4.3 GHz
Idle	38.3 °C	39.9 °C	44.3 °C
Load	72.8 °C	81.5 °C	89.6 °C

Results

At a stock frequency we obtained 1781 cb on Cinebench R15.



At our goal of 4.2 GHz while using memory XMPs at a frequency of 3400 MHz, we obtained a Cinebench R15 score of 1915 cb. That's a 134 point difference!

Chapter 4: Pushing Past 4.2+ GHz

Although 4.2 GHz might be the limit for many parts, there are parts that can be overclocked even higher. Not under all circumstances are these results going to assure you the prime95 stability but at least the parts might be able to be stable through Cinebench R15. We recommend using reliable dual-radiator water cooling or even better, a triple-radiator solution for the best results. For the specific steps please refer to the overclocking guide above.

Step 1: Adjust CPU Clock Ratio

Previously we set our CPU Clock Ratio to 42 and now it's a simple adjustment to 42.5 or even higher. Since this overclock is more difficult than the previous 4.2 GHz overclock, we suggest you change these settings through the BIOS.

M.I.T. Syst	em BIOS	Peripherals	Chipset Power	Save & Exit	04/11/2018 Wednesday 16:18
EZ Overclock Tuner			Auto		
CPU Clock Control			Auto	100.00MHz	
Host Clock Value			100.00MHz		
CPU Clock Ratio			43.00	37.00	
CPU Frequency			4.30GHz	3.70GHz	
Advanced CPU Core	Settings				
Extreme Memory Pr	ofile(X.M.P.)		Profile1		
System Memory Mu			Auto	36.00	
Memory Frequency	(MHz)		3600MHz	2133MHz	
Esc Back					
Back					

Step 2: Adjust CPU Vcore

Since we are aiming for a higher frequency this time, CPU Vcore needs to be increased. Depending on how lucky you were in the CPU lottery, the CPU Vcore setting can range from 1.32V to 1.38V. Our particular CPU needed 1.35 V to be stable.

			GIO	GABYTE					
M.I.T	. System	BIOS	Peripherals	Chipset	Power	Save & Exi	/11/2018 ednesday	16:1	8
CPU Vc				1.3500		1.22500V			
	ic Vcore(DVID)			Auto		+0.00000V			
VCORE	SOC			Auto		1.10000V			
Dynami	ic VCORE SOC(DVID)			Auto		+0.00000V			
CPU VD	D18			Auto		1.800V			
CPU VD	DP			Auto					
CHIPSE	T CORE 2.5V			Auto		2.500V			
CHIPSE	T CORE 1.05V			Auto		1.050V			
DRAM	√oltage (CH A/B)			Auto		1.200V			
DRAM 1	Termination (CH A/B))		Auto		0.600V			
CPU Vc	ore Loadline Calibrati	ion		Turbo					
VCORE	SOC Loadline Calibra	tion		Auto					
Esc	Back								
	Dack			*				in the second	

Step 3: Change CPU Vcore Loadline Calibration

In order to reduce any possible Vdroop that interferes with our stability when overclocking, set LCC to "Turbo". If the system is not stable, set the LLC to "Extreme"

			GI	GABYTE			
		anna an	unun	NILLIN I	10000	in the second	1/2018 nesday 16:18
M.I.T.	System	BIOS	Peripherals	Chipset	Power	Save & Exit	
CPU Vcor				1.350		1.22500V	
	Vcore(DVID)			Auto		+0.00000V	
VCORE SO				Auto		1.10000V	
	VCORE SOC(DVID)			Auto		+0.00000V	
CPU VDD				Auto		1.800V	
CPU VDD				Auto			
	CORE 2.5V			Auto		2.500V	
	CORE 1.05V			Auto		1.050V	
	ltage (CH A/B)			Auto		1.200V	
DRAM Te	rmination (CH A/B	5)		Auto		0.600V	
	e Loadline Calibrat			Turb			
VCORE SO	OC Loadline Calibr	ation		Auto			
Esc	Back						
	Dack						

Step 4: Stability Testing

Test the stability of these new settings by following the steps under "How to Stability Test" or use another lighter benchmark depending on what you are aiming for.

Below is an example of a Ryzen 2700X using a LEPA AquaChanger 240 AIO cooler.

It could pass prime95 for 30 minutes at 4.3 GHz.

🖬 Pirrel5 – 🗆 X	🖸 CPU-Z – 🗆 X	HWINE064 v5.79-3390 Sensor	Status	- 🗆 X
Test Edit Advanced Options Window Help	CPU Caches Mainboard Memory SPD Graphics Bench About	Sensor	Ourrent Minimum	Maximum Avera ^
🛐 Mars thread	Processor Name AND Ryzen 7 2700X	CPU [#0]: AMD Ryzen 7		Second 20000
Worker #1 - Self-Test	Code Name Pinnade Ridge Max TDP 105.0 W Peckage Socket AM4 (1331)		89.4°C 44.3°C 79.4°C 34.3°C	89.8 °C 86.2 79.8 °C 76.2
	Technology 12 nm Core Voltage 1.392 V		1.325 V 1.319 V	1.356 V 1.325
Worker #2 - Self-Test	Specification AMD Ryzen 7 2700X Eight-Core Processor		1.225 V 1.225 V	1-225 V 1-225
	Family F Model 8 Stepping 2		0.259 A 12.518 A	100.800 A 92.681
Worker #1 - Self-Test	Ext. Family 17 Ext. Model 8 Revision 82		14.412 A 12.059 A	15.294 A 14.276
	Instructions MMX(+), SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, SSE44,		0.857 W 37.259 W	184.964 W 174.585
Worker #4 - Self-Test	x85-64, AMD-V, AES, AVX, AVX2, FMA3, SHA		7.710 W 5.051 W	18.797 W 17.348
	Clocks (Core =0) Cache		6.889 W 0.698 W 6.205 W 0.257 W	19.291 W 18.000 19.120 W 17.602
Worker #5 - Self-Test	Core Speed 4299.88 MHz L1 Data 8 x 32 KBytes 8-way		6.852 W 0.304 W	19.120 W 17.902 19.045 W 17.747
24 Works 43 - 262 - 162	Multpler x 43.0 L1 Inst. 8 x 64x8ytes 4 way		6.576 W 0.520 W	19.055 W 17.430
	Bus Speed 100.00 MHz Level 2 8 x 512 KBytes 8-way		6.940 W 0.249 W	19.284 W 17.907
🗱 Worker #6 - Self-Test	Rated FSB Level 3 2 x 8 MBytes 16-way		6.400 W 0.295 W	19.255 W 17.379
			6.826 W 0.721 W	19.361 W 17.981
Worker #7 - Self-Test	Selection Social #1 + Cores 8 Threads 16		9.993 W 16.977 W	133.560 W 122.730
			7.654 W 14.772 W	18.735 W 17.488
😴 Worker #3 - Self-Test	CPU-Z ver. 1.84.0.x64 Tools Validate Close	CPU+SoC Power (SV12 13	7.247 W 31.749 W	150.854 W 140.217
	🖸 CPU-Z – 🗇 X	GIG48YTE X+70 ACRUS		
2 Worker #9-Self-Test	CPU Caches Manboard Memory SPD Graphics Bench About	Temperature 1	32 °C 31 °C	32 °C 31
	General	Temperature 2	37 °C 37 °C	38 °C 37
Worker = 10 - Self - Test	Type DOR4 Channel # Dual	Temperature 3	79 °C 34 °C	79 °C 76
	Size 16 GBytes DC Mode	Temperature 4	36 °C 34 °C	36 °C 35
Worker #11 - Self-Test	NB Frequency 1699.6 MHz	Temperature 5	78 °C 49 °C	79 °C 71
	S. 5.1	y Voore	1.380 V 1.356 V	1.428 V 1.397
Worker #12 - Self-Test	Timings		1.740 V 1.728 V 1.944 V 1.932 V	1.920 V 1.755 1.992 V 1.945
	DRAM Prequency 1699.6 MHz PS8:DRAM 3:51		1.944V 1.932V 3.044V 3.024V	1.992 V 1.998 3.256 V 3.061
Wenter #13 - Salf-Test	CAS# Latency (CL) 16.0 docks	+12V	4,992 V 4,944 V	5.088 V 4.996
	RAS# to CAS# Delay (IRCD) 16 dods	A second		
Worker #14 - Self-Test	RAS# Precharge (BP) 16 dods			>
CADRUS	Cycle Time (\$RAS) 36 docks	× A		10 0 0 D
Worker #15 - Self-Test	Bank Cycle Time (RC) 52 clocks	1-120		12 0 0 0
			and the second s	
Worker#16-Self-Test	10 CPU-Z - C X	vanced 🔔 System Aler	/ F	Record
For Help, press F1 (G) Task Menager X	CPU Caches Mainboard Memory SPD Graphics Bench About	re Monitor	-	
	Motherboard			
nt snaphsot0005 File Options View	Hanufacturer Ggabyte Technology Co. Ltd.	Temperature		
Processes Performance Apphistory Startup Users Details Services	Model X470 AORUS GAMING 7 WIFI-OF Default string	A 🚍 System 1		
	Chipset AMD Ryzen SOC Rev. 00			- A
CPU AMD Ryzen 7 2700X Eight-Core Processor	Southbridge AMD X470 Rev. 51	A 🚍 System 2		
99% 428 GHz CPU AMD Ryzen 7 2700X Eight-Core Processor	LPCIO ITE IT3686			
snaphsot0.06 % Utilization 10%	8105	🛕 🗐 VRM MOS		
Memory	BIOS Brand American Megatrends Inc.	A = EC_TEMP1		
1.7/15.9 GB (11%)	Brand American Megathends Inc. Version P4a			
	Date 03/22/2018	A 😑 EC_TEMPZ		
Disk 0 (C:)		A 0-		
	Graphic Interface	🔺 🚱 Fan		
vel snaphsot0007 0% el secondo 0 Utilization Sored Base speed 4.30 GHz	Version PCI-Express	A 🖨 CPU	2464 1000 RP	A
	Link Width x16 Max. Supported x16			-
Ethernet 99% 4.28 GHz Sockets 1 Cores 8	Side Band Addressing	\Lambda (🚍 сри арт		M - I - A
Not connected Cone: 6				

And Cinebench R15 at 4350 MHz.

