

AMD Ryzen 4th gen Threadripper

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The AMD Ryzen logo is centered on the right side of the slide. It features the word "RYZEN" in a bold, white, sans-serif font. Behind the letters is a large, glowing orange and red circular shape that resembles a stylized sun or a fiery ring. The background of the entire slide is dark with a dense, textured pattern of orange and red sparks or embers, giving it a high-tech, energetic feel.

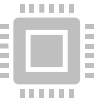
RYZEN



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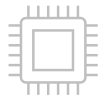
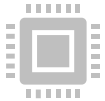
- Architecture upgrade



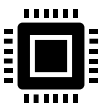
- Comparison with Intel equivalent



Context



Ryzen 5000 Desktop CPUs	Ryzen 5000 Threadripper CPUs (HEDT)
Gaming, creative work tasks	Processor-intensive tasks
Small core count (6 to 16)	Large core count (64)
Each individual core is fast	Slowed down cores, otherwise: overheating



Specifications (leak)

- > Lithography: 7 nm
- > Number of cores: 64
- > Core Architecture: Zen 3
- > PCIe 4.0
- > Number of Threads: 128
- > Total cache L3: 256 MB
- > Memory: Quad-channel DDR4 3200MHz
- > TDP: 180W

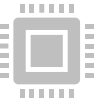


Zen 3 Architecture



1. Branch Prediction

= helps to predict which instructions to execute next

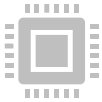


Improvements:



- more bandwidth
- quicker recover from misses





Zen 3 Architecture

2. Cache

= contains the data that needs to be processed very fast

ZEN 2	ZEN 3
Each core complex: 4 cores	each core complex: 8 cores ,
sharing 16 MB L3 cache	sharing 32 MB L3 cache.

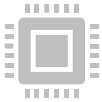
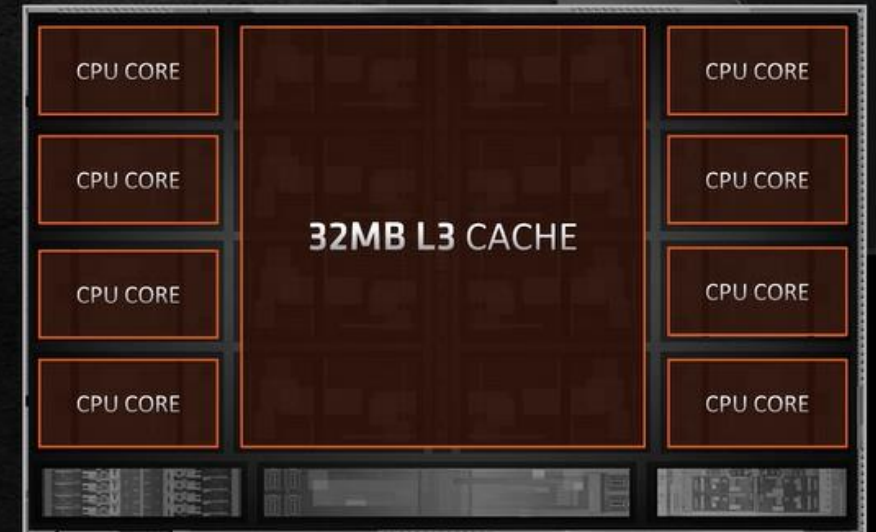
- Better *core to core* and *core to cache* communication
- Lowers the latency
- Instructions per clock increase of 19%
- Higher clock speeds

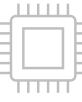
Zen 3 vs Zen 2 Architecture

“ZEN 2”
LAYOUT



“ZEN 3”
LAYOUT





Chagall vs Intel Sapphire rapids

CPU Family	Intel Sapphire Rapids-X	AMD Ryzen Threadripper 5000
Process Node	10nm ESF	7nm
Core Architecture	Golden Cove	Zen 3
Platform	W790	TRX40/TRX80
Socket	LGA 4677?	LGA 4096
Max Cores / Threads	56/112?	64/128
Max Cache (L3)	168 MB?	224 MB + V-Cache?
Memory Support	DDR5-4800	DDR4-3200
Max PCIe Lanes	64 PCIe Gen 5.0	128 PCIe Gen 4.0
TDP	Up To 225W	Up To 280W



AMD 

*Enabling today.
Inspiring tomorrow.*

RYZEN 

Bibliography

<https://www.youtube.com/watch?v=Pxn-QOpkrBw&list=WL&index=5>

<https://www.igorslab.de/en/chagall-lives-at-ryzen-threadripper-pro-5995wx-and-his-4-brothers-with-interesting-technical-data/>