AMD Ryzen 4th gen Threadripper

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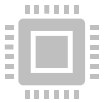
Context

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**.

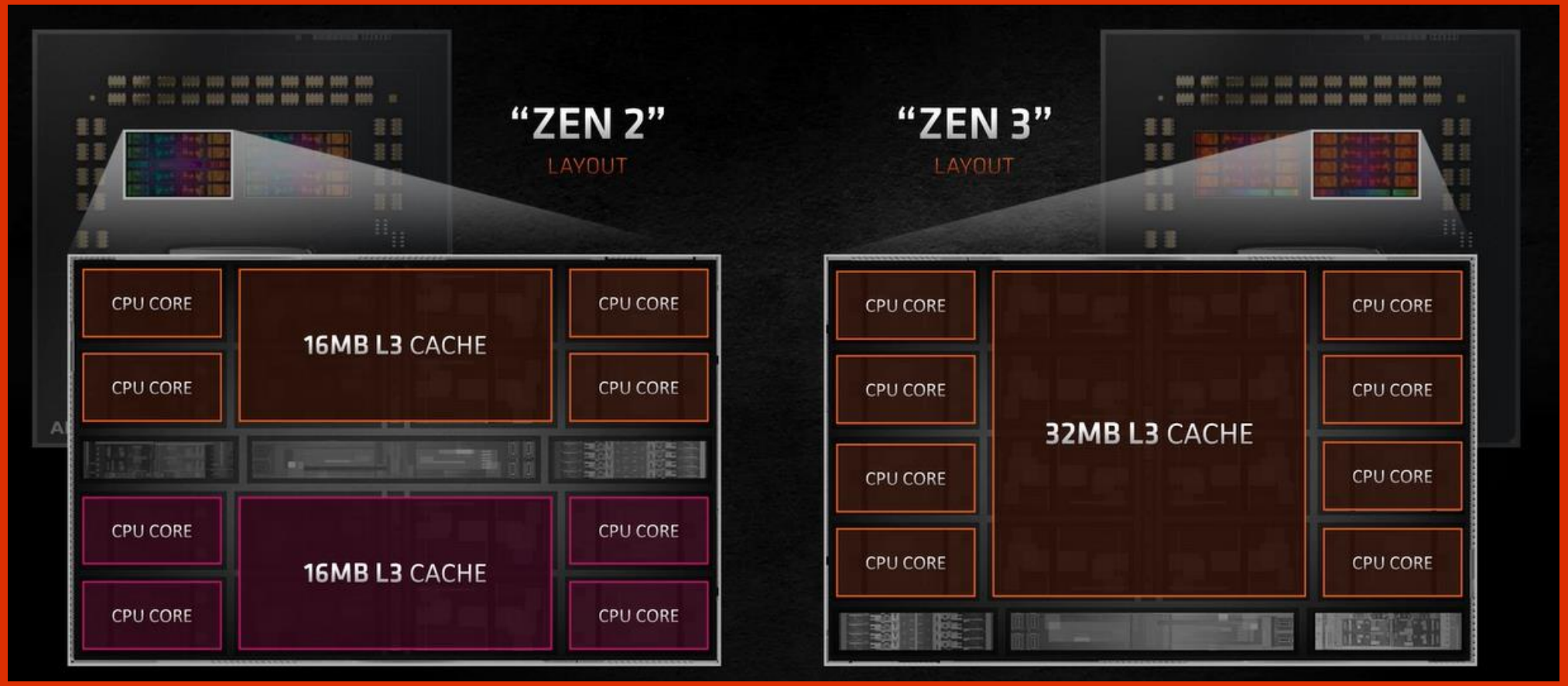
→ Better ***core to core*** and ***core to cache*** communication

→ Lowers the latency

→ Instructions per clock increase of 19%

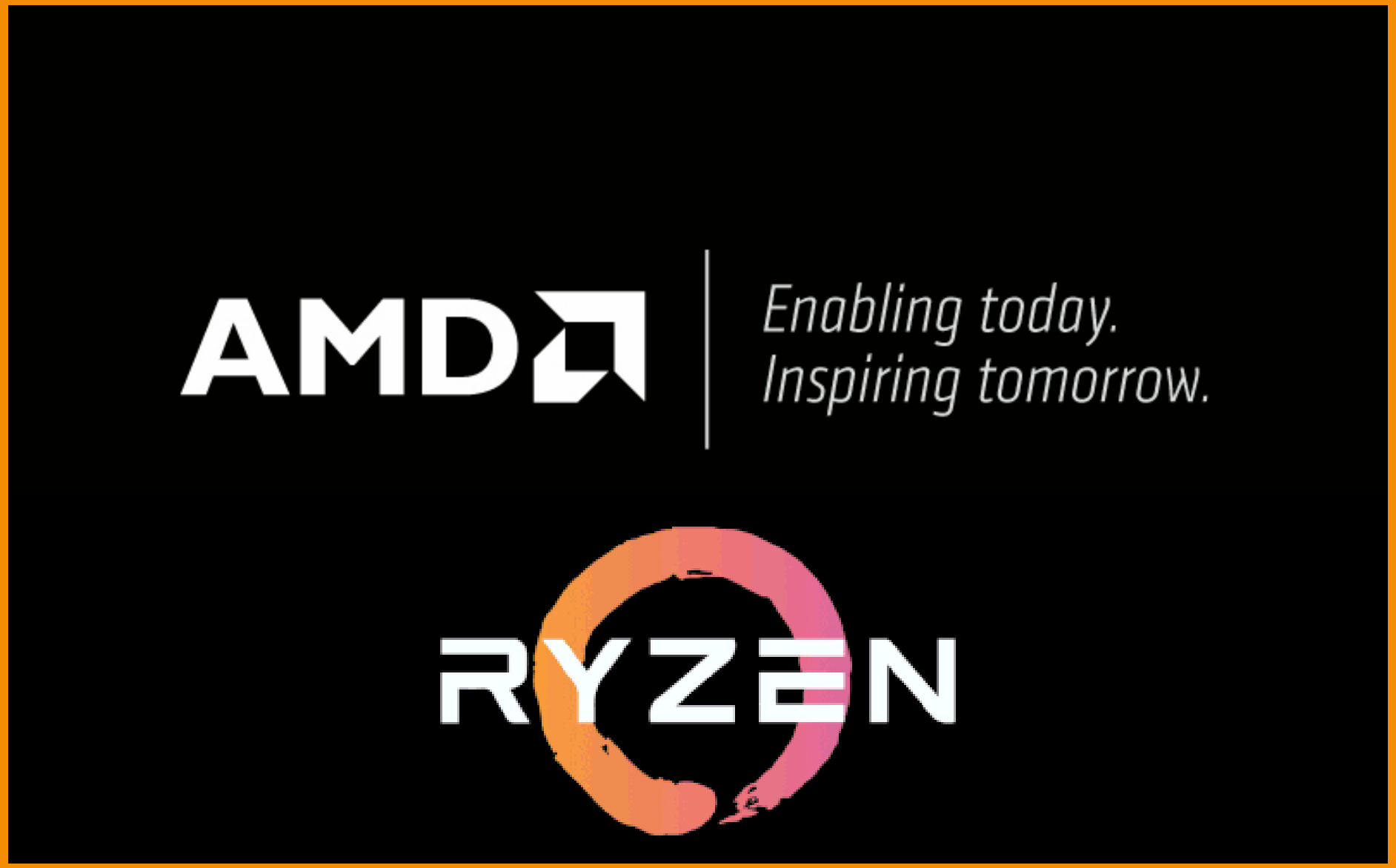
→ Higher clock speeds

Zen 3 vs Zen 2 Architecture



Chagall vs Intel Saphire 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
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RYZEN

Bibliography

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