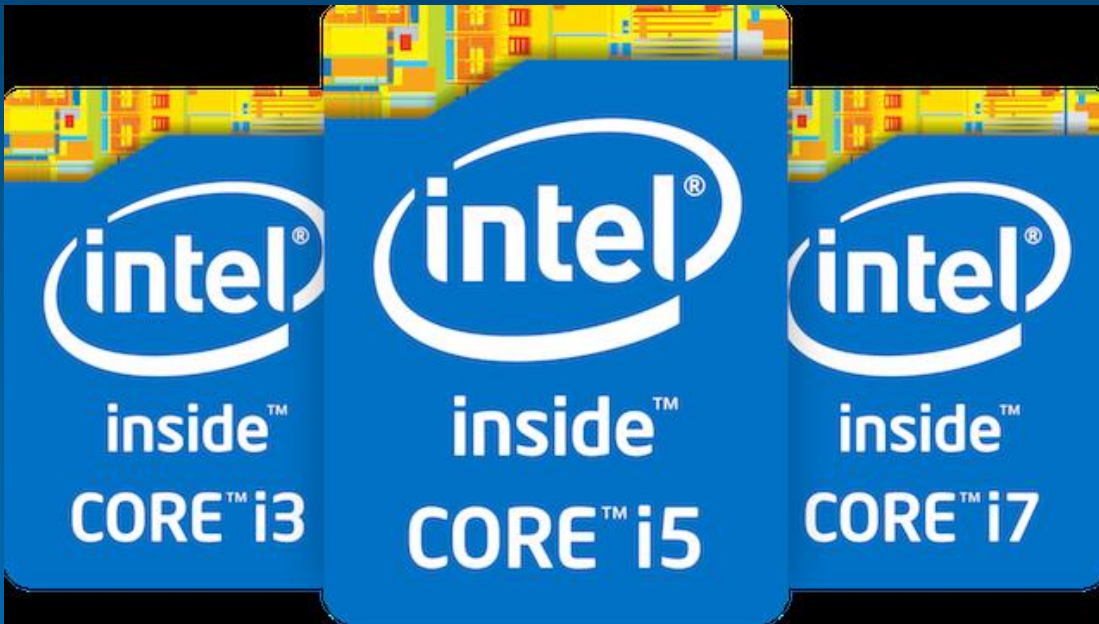


# Intel i3, i5, i7, i9 processors



# Understanding the Model Numbers

- An Intel Core i7 is better than a Core i5, which in turn is better than a Core i3. The trouble is knowing what to expect within each tier.
- **First, i7 does not mean a seven-core processor!** These are just names to indicate **relative performance**.
- Typically, the Core i3 series has only dual-core processors, while the Core i5 and Core i7 series have both dual-core and quad-core processors. Quad-cores are usually better than dual-cores.

# Intel releases “families” of chipsets

like the

**10th generation Coffe Lake-U** (10-nanometer manufacturing process technology)

**9th generation Coffe Lake-H** (14-nanometer manufacturing process technology)

**8th generation Coffe Lake** (14-nanometer manufacturing process technology)

**7th generation Kaby Lake** (14-nanometer manufacturing process technology)

**6th generation Skylake** (14-nanometer manufacturing process technology)

**5th generation Broadwell** (14-nanometer manufacturing process technology)

**4th generation Haswell** (22-nanometer manufacturing process technology)

**3rd generation Ivy Bridge** (22-nanometer manufacturing process technology)

**2rd generation Sandy Bridge** (32-nanometer manufacturing process technology)

Each family has its own line of Core i3, i5 & Core i7 series of processors.

You can spot which generation a processor belongs to by **the first digit in its four-digit model name**, ie. the Intel Core i3-5200 belongs to the **5th** generation.

Remember:

Intel's new generations won't support Windows 7.

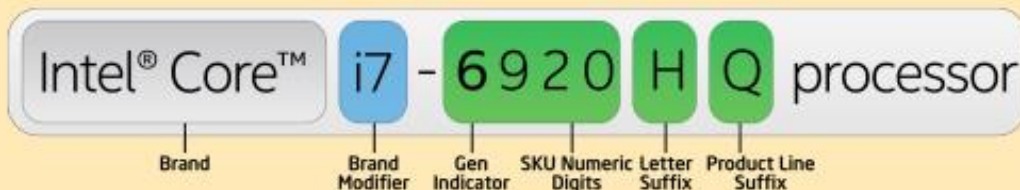
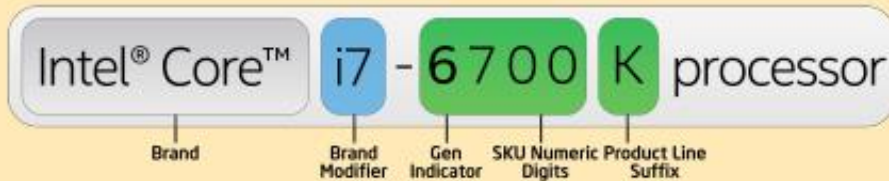
# Intel “families” of chipsets

The other three digits are Intel’s assessment of how the processor compares to others in its own line, ie. an Intel Core i3-5350 is superior to the Core i3-5200 because  $350 > 200$ .

# End Letters: U vs Q vs H vs K

The model number will typically be followed by one or a combination of the following letters: U, Y, T, Q, H & K:

- **U: Ultra Low Power.** The U rating is only for laptop processors. These draw less power & are better for the battery.
- **Y: Low Power.** Found on older generation laptop.
- **T: Power Optimized** for desktop processors.
- **Q: Quad-Core.** The Q rating is only for processors with 4 cores.
- **H: High-Performance Graphics.** The chipset has Intel's graphics
- **K: Unlocked.** This means you can [overclock the processor](#).



details at:  
[ark.intel.com](http://ark.intel.com)

# About Intel Processor Numbers

[www.intel.in/content/www/in/en/processors/processor-numbers.html](http://www.intel.in/content/www/in/en/processors/processor-numbers.html)

## Intel® Processor Numbers: Laptop, Desktop, and Mobile Device

Tags: [7th Generation Intel® Core™ i7 Processor](#) [7th Generation Intel® Core™ i5 Processor](#) [Intel® Pentium® Processor](#) [Intel® Atom™ Processor](#) [More](#) ▾



## ABOUT INTEL® PROCESSOR NUMBERS

The processor number is one of several factors, along with processor brand, specific system configurations, and system-level benchmarks, to be considered when choosing the right processor for your computing needs.

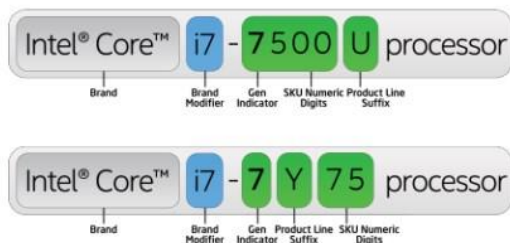
A higher number within a processor class or family generally indicates more features, but it may be more of one and less of another. Once you decide on a specific processor brand and type, compare processor numbers to verify the processor includes the features you are looking for.

[View processor specifications and compare processors](#) ›

[View processor performance benchmarks](#) ›

[View processor numbers for microservers, servers, and workstations](#) ›

## DESKTOP AND MOBILE PROCESSORS



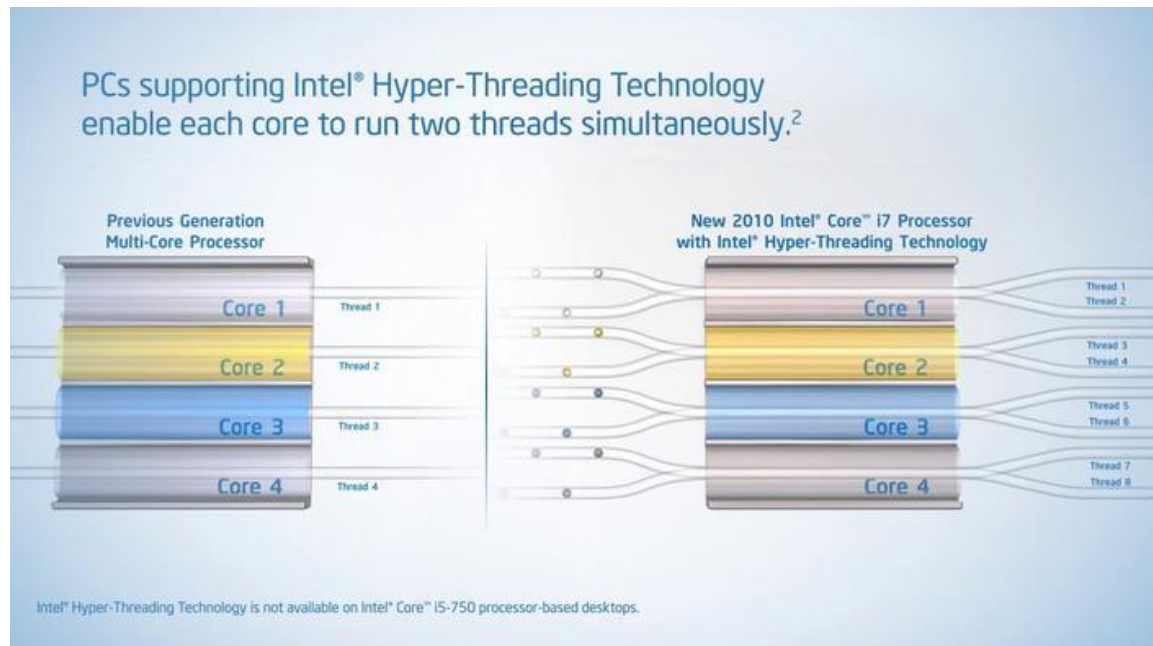
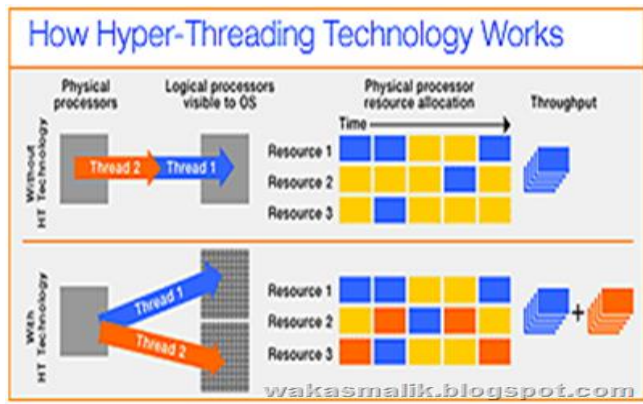
### 7th Generation Intel® Core™ Processor Family

Processor numbers for the 7th Generation Intel® Core™ processors use an alphanumeric scheme based on generation and product line following the brand and its modifier. The first digit in the four-number sequence indicates the generation of processor, and the next three digits are SKU numbers. Where applicable, an alpha suffix appears at the end of the processor name, which represents the processor line. Intel® High End Desktop processors follow a different numbering scheme due to the difference in their feature set.

[Get the details for Intel® High End Desktop Processors](#) ›

# Hyper-Threading: i7 > i3 > i5

Intel specifically writes U and Q for the number of physical cores. What other kinds of cores are there? The answer is virtual cores, activated through [a technology called Hyper-Threading](#).





# The Intel's Turbo Boost Technology

allows a processor to dynamically increase its clock speed as the need arises. The max amount that Turbo Boost can raise clock speed at any given time is dependent on the:

- number of **active cores**
- estimated **current consumption**
- estimated **power consumption**
- processor **temperature**.



To translate: Intel's TB monitors how you use your processor to determine how close the processor is to the maximum thermal design power, then raises the clock speed accordingly.

Currently branded as TBT 2.0, this feature is currently available in many 7th-gen & 8th-gen Intel Core i7 & i5 .



# Cache Size: i7 > i5 > i3

Apart from Hyper-Threading & Turbo Boost, the one other major difference in the Core line-up is **Cache Size**. Cache is the processor's own memory and acts like its private RAM — and it's one of [the little-known specs that slows down your PC](#).

[Intel's Haswell-based processors](#) have an L1 cache of 64KB per core, L2 of 256KB, L3 of up to 20MB and L4 of up to 128MB

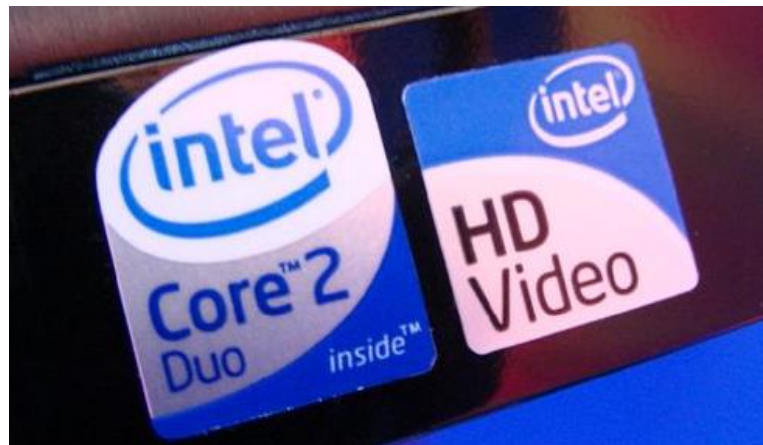
**Core Cache Size/Latency/Bandwidth**

Metric	Nehalem	Sandy Bridge	Haswell
L1 Instruction Cache	32K, 4-way	32K, 8-way	32K, 8-way
L1 Data Cache	32K, 8-way	32K, 8-way	32K, 8-way
Fastest Load-to-use	4 cycles	4 cycles	4 cycles
Load bandwidth	16 Bytes/cycle	32 Bytes/cycle (banked)	64 Bytes/cycle
Store bandwidth	16 Bytes/cycle	16 Bytes/cycle	32 Bytes/cycle
L2 Unified Cache	256K, 8-way	256K, 8-way	256K, 8-way
Fastest load-to-use	10 cycles	11 cycles	11 cycles
Bandwidth to L1	32 Bytes/cycle	32 Bytes/cycle	64 Bytes/cycle
L1 Instruction TLB	4K: 128, 4-way 2M/4M: 7/thread	4K: 128, 4-way 2M/4M: 8/thread	4K: 128, 4-way 2M/4M: 8/thread
L1 Data TLB	4K: 64, 4-way 2M/4M: 32, 4-way 1G: fractured	4K: 64, 4-way 2M/4M: 32, 4-way 1G: 4, 4-way	4K: 64, 4-way 2M/4M: 32, 4-way 1G: 4, 4-way
L2 Unified TLB	4K: 512, 4-way	4K: 512, 4-way	4K+2M shared: 1024, 8-way

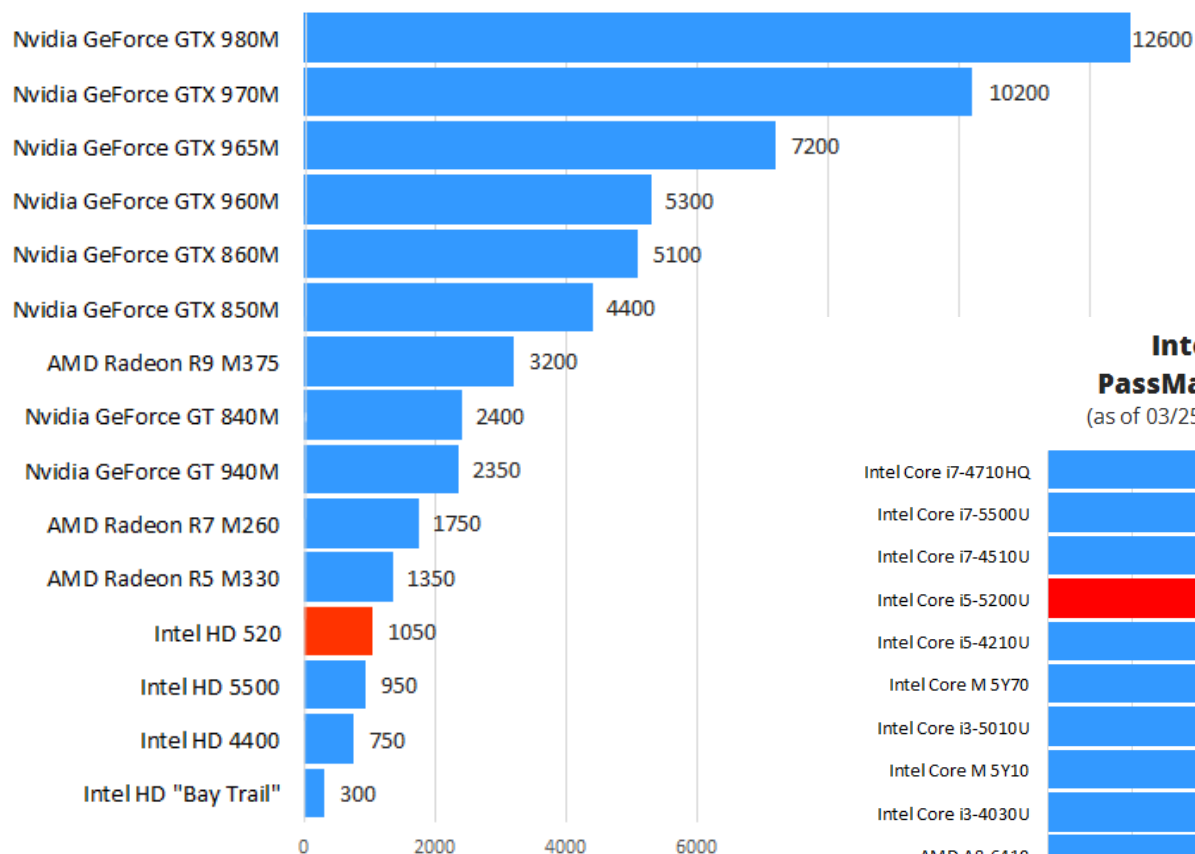
All caches use 64-byte lines

# Graphics: HD, Iris, Iris Pro

Intel HD 520 is a basic graphics chipset. Intel Iris 550 is better than Intel HD 520, but also basic. But Intel **HD 530 is a high-performance graphics unit and is better than Intel Iris 550.** However, Intel Iris Pro 580 is also a high-performance graphics unit and better than Intel HD 530.

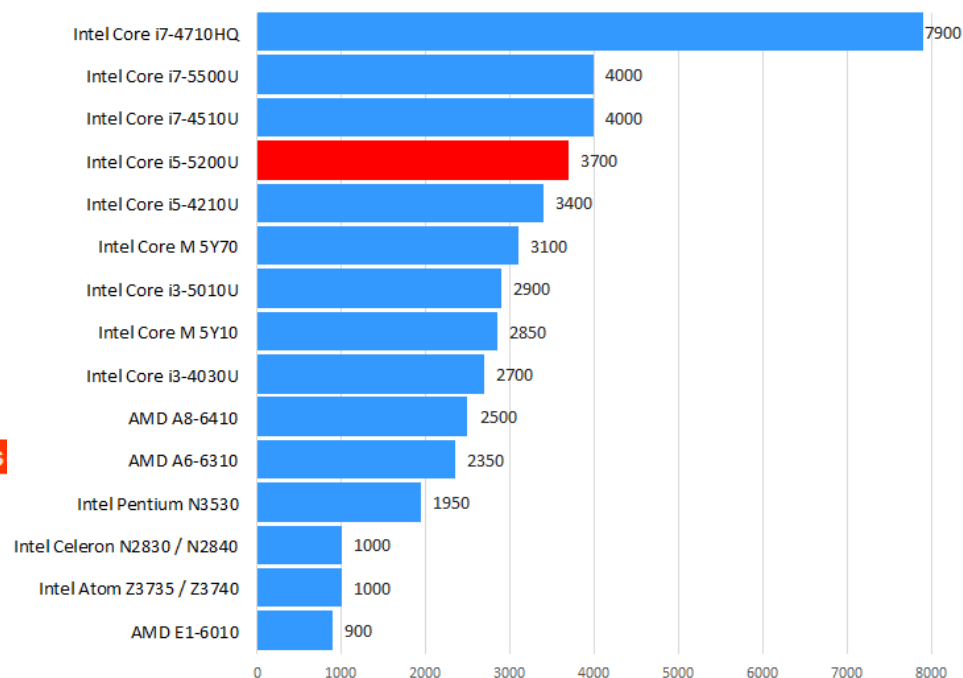


# Graphics: HD, Iris, Iris Pro



Intel HD 520 - 3D Mark 11 "Performance" Mode (as

**Intel Core i5-5200U**  
**PassMark CPU Benchmark**  
 (as of 03/25/15, values are approximate)



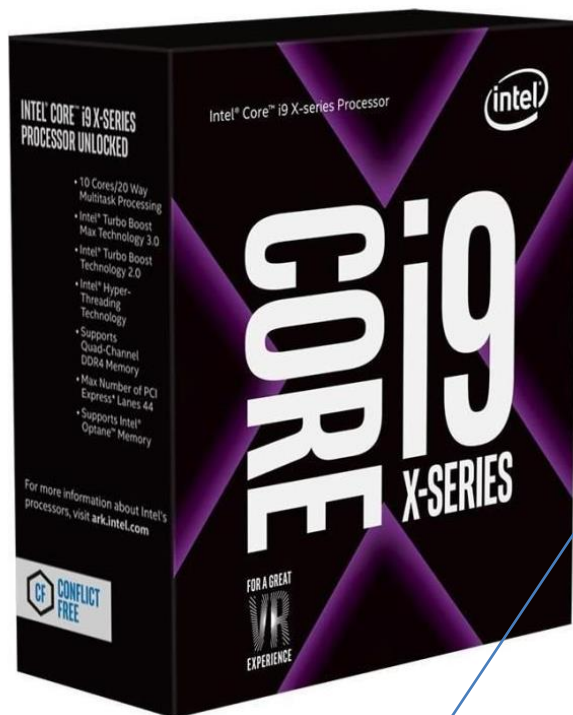
# Comparing Cores i3, i5, i7

Processor	Physical Cores	Cache Size	Hyper-Threading	Turbo Boost	Graphics	Price
Core i3	2	3MB	Yes	No	Low	Low
Core i5	2-4	3MB-6MB	No	Yes	Mid-range	Mid-range
Core i7	2-4	4MB-8MB	Yes	Yes	Best	Expensive

# Procesory X'2016

	Intel Core i7-6700K	Intel Core i5-6600K	AMD A10-7890K
Liczba rdzeni/wątków	4/8	4/8	2/4
Taktowanie	4.0 GHz	3.5 GHz	4.1 GHz
Taktowanie Turbo	4.2 GHz	3.9 GHz	4.2 GHz
Nazwa kodowa	Skylake	Skylake	Godavari
Podstawka	LGA 1151	LGA 1151	FM2+
Litografia CPU	14 nm	14 nm	28 nm
Max TDP	91 W	91 W	95 W
Odblokowany mnożnik	Tak	Tak	Tak
Zintegrowana grafika	Intel HD 530	Intel HD 530	Radeon R7

**TDP** (Thermal Design Power) - ilość wydzielanego ciepła, którą trzeba odebrać z *procesora*



Intel Platinum Partner



dodaj do porównania

Procesor Intel Core i9-7960X 2.8 GHz,  
22MB, BOX (BX80673I97960X)

ID produktu: 1542281

Zobacz produkty podobne

★★★★★ (3)

Kupiło 19 osób

Lubię to! 0

Zamów teraz, aby odebrać w czwartek, 13 grudnia

Pamiętaj o Prezentach

6 270,40 zł

Została tylko 1 szt.

[cena od 159,15 zł](#)

Do koszyka

Zapytaj o produkt

Czat na żywo

### Intel® Core™ i9 X Series Processors

Model	Base clock	Overclock Speed	Core/Thread	L3 cache	Socket Type
Intel Core i9-7980XE	2.60 GHz	4.20 GHz	18 / 36	24.75 MB	LGA2066
Intel Core i9-7960X	2.80 GHz	4.20 GHz	16 / 32	22 MB	LGA2066
Intel Core i9-7940X	3.10 GHz	4.30 GHz	14 / 28	19.25 MB	LGA2066
Intel Core i9-7920X	2.90 GHz	4.30 GHz	12 / 24	16.5 MB	LGA2066
Intel Core i9-7900X	3.30 GHz	4.30 GHz	10 / 20	13.75 MB	LGA2066

You can check out the full specs below. The new i9 processors, which have been codenamed "Cascade Lake-X," range from 10 cores up to 18. The chips also come with 48 PCIe 3.0 lanes, which is four more than last year's chip line.

PROCESSOR NUMBER	BASE CLOCK SPEED (GHZ)	INTEL® TURBO BOOST TECHNOLOGY 2.0 FREQUENCY (GHZ)	ALL CORE TURBO SPEED (GHZ)	INTEL® TURBO BOOST MAX TECHNOLOGY 3.0 FREQUENCY (GHZ)	CORES/ THREADS	L3 CACHE	RCP PRICING (USD 1K)
Intel® Core™ i9-10980XE Extreme Edition	3.0	4.6	3.8	4.8	18/36	24.75 MB	\$979
Intel® Core™ i9-10940X X-series	3.3	4.6	4.1	4.8	14/28	19.25 MB	\$784
Intel® Core™ i9-10920X X-series	3.5	4.6	4.3	4.8	12/24	19.25 MB	\$689
Intel® Core™ i9-10900X X-series	3.7	4.5	4.3	4.7	10/20	19.25 MB	\$590

All four chips have a thermal design power at 165 watts. Other features include support for up to 256GB of DDR4 RAM —which is twice as much as last year's line— Thunderbolt 3, and Intel's **Optane SSD 905P**.



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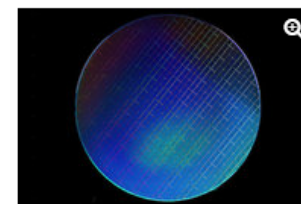
## Intel Sneaks Out Z390 Chipset Documents: Native USB 3.1 Gen2, Wireless-AC, Bluetooth 5 (Update)

22  
COMMENTS

by Paul Alcorn May 24, 2018 at 11:10 AM



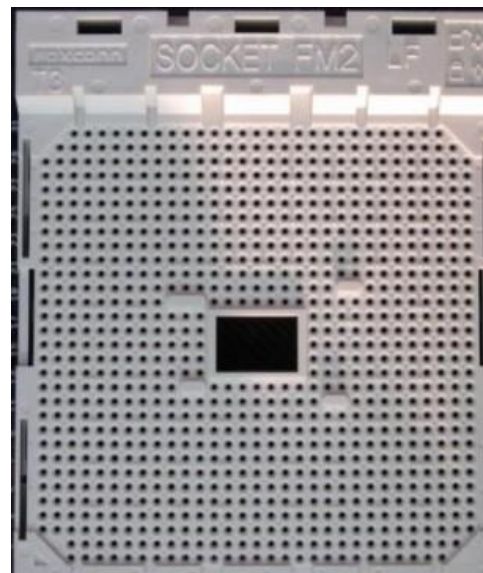
*Update, 5/24/18, 12:15pm PT: Intel added the Z390 to its official chipset documentation, which [you can find here](#). Aside from the details we've already dug up, the documentation includes more information about the HSIO (High-Speed I/O) lanes, which we've included in an album below. Hat tip to PCGamesHardware for finding the update.*



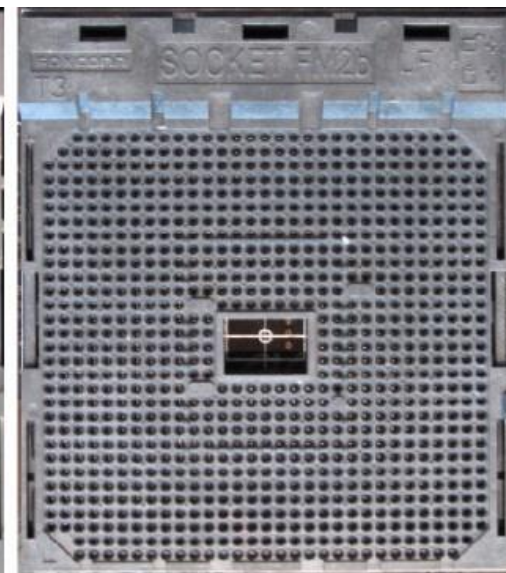
Intel has posted an [Z390 Chipset Product Brief](#) to its site with little fanfare. The document outlines the features of the new chipset, which largely mirrors the features of the [new 300-series chipsets](#) the company launched with its latest round of Coffee Lake processors. Unfortunately, the document doesn't confirm the new chipset will support the [rumored eight-core mainstream desktop model](#), but given the information we've already gathered from multiple sources, it is almost a certainty.

<https://www.tomshardware.com/news/intel-chipset-z390-eight-core-processor,37046.html>

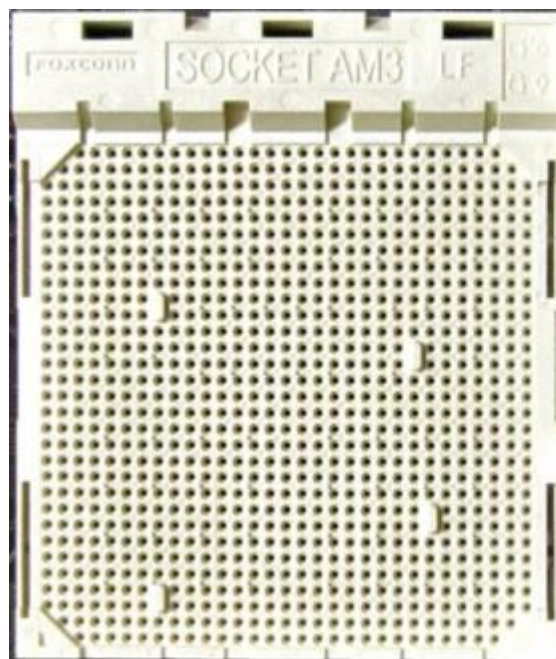
# Podstawki FM2+ i AM3+



Socket FM2



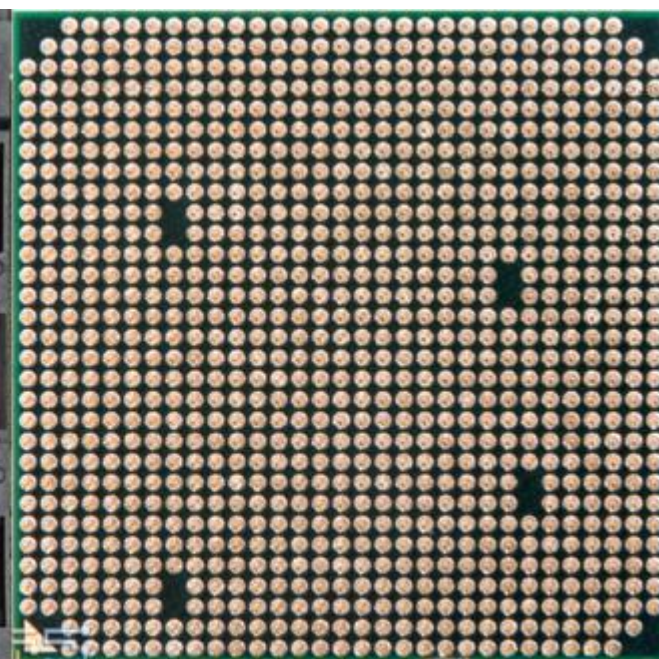
Socket FM2+



AM3



AM3+

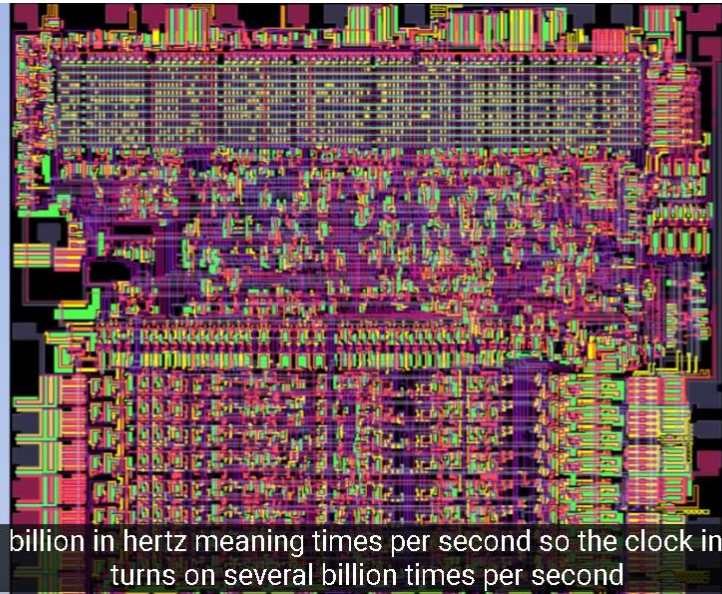


AM3+



# Linki

- [Evolution of Intel | History of Intel \( 1971-2018 \)](#)
- [Intel Processor Generations As Fast As Possible \\*CORRECTED\\*](#)
- [History of AMD CPUs As Fast As Possible](#)
- [See How a CPU Works](#)



giga meaning billion in hertz meaning times per second so the clock in modern cpus turns on several billion times per second