

## Intel Core i5-4590S processor 3 GHz 6 MB Smart Cache

**Brand :** Intel

**Product family:** Core

**Product code:**  
CM8064601561214

**Product name :** i5-4590S

Intel® Core™ i5-4590S Processor  
(6M Cache, up to 3.70 GHz)

[Intel Core i5-4590S processor 3 GHz 6 MB Smart Cache:](#)

Amazing performance and stunning visuals with a boost. Raise the bar on your PC experience with rich visuals plus an automatic burst of speed when you need it. The 4th generation Intel® Core™ i5 processor delivers amazing performance, stunning visuals, and built-in security for deeper protection.

Discover the thrill of an automatic burst of speed when you need it with Intel® Turbo Boost Technology 2.0. Experience your movies, photos, and games smoothly and seamlessly with a built-in suite of visual enhancements—and enjoy them even more with longer battery life.

Get a boost in your performance that you can truly see and feel, along with extra peace of mind from enhanced security. Because the only thing more amazing than Intel® technology is what you'll do with it.



Processor		Processor special features	
Processor manufacturer *	Intel	Intel® Hyper Threading Technology (Intel® HT Technology)	✗
Processor generation	4th gen Intel® Core™ i5	Intel® Identity Protection Technology (Intel® IPT)	✓
Processor model *	i5-4590S	Intel® My WiFi Technology (Intel® MWT)	✓
Processor base frequency *	3 GHz	Intel® Turbo Boost Technology	2.0
Processor family *	Intel® Core™ i5	Intel® Quick Sync Video Technology	✓
Processor cores *	4	Intel® InTru™ 3D Technology	✓
Processor socket *	LGA 1150 (Socket H3)	Intel® Wireless Display (Intel® WiDi)	✓
Component for	PC	Intel FDI Technology	✓
Processor lithography *	22 nm	Intel® Clear Video HD Technology (Intel® CVT HD)	✓
Processor series	Intel Core i5-4500 Desktop Series	Intel® Insider™	✓
Processor threads	4	Intel® AES New Instructions (Intel® AES-NI)	✓
System bus rate	5 GT/s	Enhanced Intel SpeedStep Technology	✓
Processor operating modes *	64-bit	Intel Trusted Execution Technology	✓
Processor boost frequency	3.7 GHz	Intel® Turbo Boost Technology 2.0 frequency	3.7 GHz
Processor cache	6 MB	Intel® Transactional Synchronization Extensions	✗
Processor cache type	Smart Cache	Intel Enhanced Halt State	✓
Thermal Design Power (TDP)	65 W	Intel VT-x with Extended Page Tables (EPT)	✓
Box *	✗	Intel® Secure Key	✓
Cooler included *	✗	Intel TSX-NI	✗
Generation	4th Generation	Intel Stable Image Platform Program (SIPP)	✓
Stepping	C0	Intel® OS Guard	✓
Bus type	DMI	Intel 64	✓
Memory bandwidth supported by processor (max)	25.6 GB/s	Intel Identity Protection Technology version	1.00
Processor codename	Haswell	Intel Secure Key Technology version	1.00
Processor ARK ID	80816	Intel Small Business Advantage (SBA) version	1.00
Memory			
Maximum internal memory supported by processor	32 GB		
Memory types supported by processor	DDR3-SDRAM, DDR3L-SDRAM		
Memory clock speeds supported by processor	1333,1600 MHz		
Memory channels *	Dual-channel		
ECC	✗		

<b>Graphics</b>		<b>Processor special features</b>	
On-board graphics card *	✓	Intel Stable Image Platform Program (SIPP) version	1.00
On-board graphics card model *	Intel® HD Graphics 4600	Intel Virtualization Technology (VT-x)	✓
Maximum on-board graphics card memory	2 GB	Intel Virtualization Technology for Directed I/O (VT-d)	✓
On-board graphics card outputs supported	Embedded DisplayPort (eDP), DisplayPort, HDMI, VGA (D-Sub)	Intel TSX-NI version	0.00
On-board graphics card base frequency	350 MHz	Conflict-Free processor	✓
On-board graphics card dynamic frequency (max)	1150 MHz	Intel® vPro™ Platform Eligibility	✓
Number of displays supported (on-board graphics)	3	<b>Operational conditions</b>	
On-board graphics card DirectX version	11.2/12	Tcase	71.35 °C
On-board graphics card OpenGL version	4.3	<b>Technical details</b>	
On-board graphics card maximum resolution (DisplayPort)	3840 x 2160 pixels	Bus bandwidth	5
On-board graphics card maximum resolution (eDP - Integrated Flat Panel)	3840 x 2160 pixels	Bus type units	GT/s
On-board graphics card maximum resolution (HDMI)	4096 x 2304 pixels	Launch date	Q2'14
On-board graphics card maximum resolution (VGA)	1920 x 1200 pixels	Maximum resolution & refresh rate (DisplayPort)	3840x2160@60Hz
On-board graphics card refresh rate at maximum resolution (DisplayPort)	60 Hz	Maximum resolution & refresh rate (HDMI)	4096x2304@24Hz
On-board graphics card refresh rate at maximum resolution (eDP - Integrated Flat Panel)	60 Hz	Maximum resolution & refresh rate (Integrated Flat Panel)	3840x2160@60Hz
On-board graphics card refresh rate at maximum resolution (HDMI)	24 Hz	Maximum resolution & refresh rate (VGA)	1920x1200@60Hz
On-board graphics card refresh rate at maximum resolution (VGA)	60 Hz	Number of graphics cores	20
On-board graphics card ID	0x412	Processor cache	6144 KB
<b>Features</b>		Product type	Processor
Execute Disable Bit	✓	Status	Launched
Idle States	✓	Maximum memory	32 GB
Thermal Monitoring Technologies	✓	Processor brand name	Intel Core i5 Intel Core i5 Processor
Market segment	Desktop	Supported memory types	DDR3-SDRAM, DDR3L-SDRAM
Maximum number of PCI Express lanes	16	Last change	63903513
PCI Express slots version	3.0	Product family	4th Generation Intel Core i5 Processors
PCI Express configurations	1x16, 2x8, 1x8+2x4	Bus speed	5 GT/s
Supported instruction sets	SSE4.1, SSE4.2, AVX 2.0	Maximum graphics card memory	2 GB
Bandwidth	5 MB/s	Processor ID	0x412
Scalability	1S	Servicing status	End of Servicing Lifetime
CPU configuration (max)	1	End of servicing updates date	Wednesday, June 30, 2021
Embedded options available	✓	<b>Logistics data</b>	
Graphics & IMC lithography	2 nm	Harmonized System (HS) code	85423119
Thermal solution specification	PCG 2013C	<b>Packaging data</b>	
Export Control Classification Number (ECCN)	5A992C	Package type	Retail box
Commodity Classification Automated Tracking System (CCATS)	G077159	<b>Weight &amp; dimensions</b>	
<b>Processor special features</b>		Processor package size	37.5 x 37.5 mm
Intel® Anti-Theft Technology (Intel® AT)	✓	<b>Other features</b>	
		Intel® Virtualization Technology (Intel® VT)	VT-d, VT-x
		Maximum internal memory	32 GB
		Maximum internal memory	32768 MB
		Graphics output	eDP/DP/HDMI/VGA
		Video decoding	✓



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