Intel Pentium Gold G6400 processor

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Intel

Intel® Optane™ Memory Supported

Intel® Optane™ memory is a revolutionary new class of non-volatile memory that sits in between system memory and storage to accelerate system performance and responsiveness. When combined with the Intel® Rapid Storage Technology Driver, it seamlessly manages multiple tiers of storage while presenting one virtual drive to the OS, ensuring that data frequently used resides on the fastest tier of storage. Intel® Optane™ memory requires specific hardware and software configuration.

Intel® Turbo Boost Technology

Intel® Turbo Boost Technology dynamically increases the processor's frequency as needed by taking advantage of thermal and power headroom to give you a burst of speed when you need it, and increased energy efficiency when you don’t.

Intel® Hyper-Threading Technology

Intel® Hyper-Threading Technology (Intel® HT Technology) delivers two processing threads per physical core. Highly threaded applications can get more work done in parallel, completing tasks sooner.

Intel® Virtualization Technology (VT-x)

Intel® Virtualization Technology (VT-x) allows one hardware platform to function as multiple “virtual” platforms. It offers improved manageability by limiting downtime and maintaining productivity by isolating computing activities into separate partitions.

Intel® Virtualization Technology for Directed I/O (VT-d)

Intel® Virtualization Technology for Directed I/O (VT-d) continues from the existing support for IA-32 (VT-x) and Itanium® processor (VT-i) virtualization adding new support for I/O-device virtualization. Intel VT-d can help end users improve security and reliability of the systems and also improve performance of I/O devices in virtualized environments.

Intel® VT-x with Extended Page Tables (EPT)

Intel® VT-x with Extended Page Tables (EPT), also known as Second Level Address Translation (SLAT), provides acceleration for memory intensive virtualized applications. Extended Page Tables in Intel® Virtualization Technology platforms reduces the memory and power overhead costs and increases battery life through hardware optimization of page table management.

Intel® 64

Intel® 64 architecture delivers 64-bit computing on server, workstation, desktop and mobile platforms when combined with supporting software.[1] Intel 64 architecture improves performance by allowing systems to address more than 4 GB of both virtual and physical memory.

Instruction Set

An instruction set refers to the basic set of commands and instructions that a microprocessor understands and can carry out. The value shown represents which Intel’s instruction set this processor is compatible with.

Instruction Set Extensions

Instruction Set Extensions are additional instructions which can increase performance when the same operations are performed on multiple data objects. These can include SSE (Streaming SIMD Extensions) and AVX (Advanced Vector Extensions).

Idle States

Idle States (C-states) are used to save power when the processor is idle. C0 is the operational state, meaning that the CPU is doing useful work. C1 is the first idle state, C2 the second, and so on, where more power saving actions are taken for numerically higher C-states.

Enhanced Intel SpeedStep® Technology

Enhanced Intel SpeedStep® Technology is an advanced means of enabling high performance while meeting the power-conservation needs of mobile systems. Conventional Intel SpeedStep® Technology switches both voltage and frequency in tandem between high and low levels in response to processor load. Enhanced Intel SpeedStep® Technology builds upon that architecture using design strategies such as Separation between Voltage and Frequency Changes, and Clock Partitioning and Recovery.

Thermal Monitoring Technologies

Thermal Monitoring Technologies protect the processor package and the system from thermal failure through several thermal management features. An on-die Digital Thermal Sensor (DTS) detects the core's temperature, and the thermal management features reduce package power consumption and thereby temperature when required in order to remain within normal operating limits.

Intel® Identity Protection Technology

Intel® Identity Protection Technology is a built-in security token technology that helps provide a simple, tamper-resistant method for protecting access to your online customer and business data from threats and fraud. Intel® IPT provides a hardware-based proof of a unique user’s PC to websites, financial institutions, and network services; providing verification that it is not malware attempting to login. Intel® IPT can be a key component in two-factor authentication solutions to protect your information at websites and business log-ins.

Zusammenfassung

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Intel Pentium Gold G6400, Intel® Pentium® Gold, LGA 1200 (Socket H5), 14 nm, Intel, G6400, 4 GHz

Intel Pentium Gold G6400. Processor family: Intel® Pentium® Gold, Processor socket: LGA 1200 (Socket H5), Processor lithography: 14 nm. Memory channels: Dual-channel, Maximum internal memory supported by processor: 128 GB, Memory types supported by processor: DDR4-SDRAM. On-board graphics card model: Intel® UHD Graphics 610, Maximum on-board graphics card memory: 64 GB, On-board graphics card base frequency: 350 MHz. Market segment: Desktop, PCI Express configurations: 1x16, 2x8, 1x8+2x4, Supported instruction sets: SSE4.1, SSE4.2. Package type: Retail box

Merkmale

Logistics data

Harmonized System (HS) code	85423119

Operational conditions

Tjunction	100 °C

Other features

Maximum internal memory	128 GB

Packaging data

Package type	Retail box

Weight & dimensions

Processor package size	37.5 x 37.5 mm

Memory

Maximum internal memory supported by processor	128 GB
Memory types supported by processor	DDR4-SDRAM
Memory clock speeds supported by processor	2666 MHz
Memory channels	Dual-channel

Technical details

Launch date	Q2'20
Maximum resolution & refresh rate (DisplayPort)	4096x2304@60Hz
Product type	Processor
Status	Launched
Maximum memory	128 GB
Supported memory types	DDR4-SDRAM
Bus speed	8 GT/s
Maximum graphics card memory	64 GB
Processor ID	0x9BA8

Features

Execute Disable Bit	Y
Idle States	Y
Thermal Monitoring Technologies	Y
Market segment	Desktop
Maximum number of PCI Express lanes	16
PCI Express slots version	3.0
PCI Express configurations	1x16, 2x8, 1x8+2x4
Supported instruction sets	SSE4.1, SSE4.2
Scalability	1S
CPU configuration (max)	1
Embedded options available	N
Thermal solution specification	PCG 2015C
PCI Express CEM revision	3.0
Export Control Classification Number (ECCN)	5A992C
Commodity Classification Automated Tracking System (CCATS)	G077159

Graphics

On-board graphics card	Y
Discrete graphics card	N
On-board graphics card model	Intel® UHD Graphics 610
Maximum on-board graphics card memory	64 GB
On-board graphics card base frequency	350 MHz
On-board graphics card dynamic frequency (max)	1050 MHz
Number of displays supported (on-board graphics)	3
On-board graphics card 4K support	Y
On-board graphics card DirectX version	12.0
On-board graphics card OpenGL version	4.5
On-board graphics card maximum resolution (DisplayPort)	4096 x 2304 pixels
On-board graphics card maximum resolution (eDP - Integrated Flat Panel)	4096 x 2304 pixels
On-board graphics card	4096 x 2160 pixels

maximum resolution (HDMI)	
On-board graphics card refresh rate at maximum resolution (DisplayPort)	60 Hz
On-board graphics card refresh rate at maximum resolution (eDP - Integrated Flat Panel)	60 Hz
On-board graphics card refresh rate at maximum resolution (HDMI)	30 Hz
On-board graphics card ID	0x9BA8
Discrete graphics card model	Not available

Processor

Processor manufacturer	Intel
Processor model	G6400
Processor base frequency	4 GHz
Processor family	Intel® Pentium® Gold
Processor cores	2
Processor socket	LGA 1200 (Socket H5)
Component for	PC
Processor lithography	14 nm
Processor threads	4
System bus rate	8 GT/s
Processor operating modes	64-bit
Processor cache	4 MB
Processor cache type	Smart Cache
Thermal Design Power (TDP)	58 W
Box	Y
Cooler included	Y
Memory bandwidth supported by processor (max)	41.6 GB/s
Processor codename	Comet Lake
Processor ARK ID	199288

Processor special features

Intel® Hyper Threading Technology (Intel® HT Technology)	Y
Intel® Identity Protection Technology (Intel® IPT)	Y
Intel® Turbo Boost Technology	N
Intel® Quick Sync Video Technology	Y
Intel® InTru™ 3D Technology	Y
Intel® Clear Video HD Technology (Intel® CVT HD)	Y
Intel® AES New Instructions (Intel® AES-NI)	Y
Enhanced Intel SpeedStep Technology	Y
Intel Trusted Execution Technology	N
Intel® Thermal Velocity Boost	N
Intel® Transactional Synchronization Extensions	N
Intel VT-x with Extended Page Tables (EPT)	Y
Intel® Secure Key	Y
Intel Stable Image Platform Program (SIPP)	N

Intel® OS Guard	Y
Intel Clear Video Technology	Y
Intel Software Guard Extensions (Intel SGX)	Y
Intel 64	Y
Intel Virtualization Technology (VT-x)	Y
Intel Virtualization Technology for Directed I/O (VT-d)	Y
Intel Turbo Boost Max Technology 3.0	N
Intel® Optane™ Memory Ready	Y
Intel® Boot Guard	Y
Intel® vPro™ Platform Eligibility	N