

[Notebook] Intel Core 2 Duo Processor (Penryn)

Personal Systems Reference (PSREF)

<i>Intel® Core™ 2 Duo processor for notebook systems</i>	Clock Perf Mode	Shared L2 cache	System bus MHz	Core	Thermal Design Power	Virtualization Tech	Intel 64 Tech	Intel Dynamic Acceleration	Trusted Execution Tech (TXT)	Available date
Intel Core 2 Duo processor T6400	2.0GHz	2MB	800MHz	Dual	35W	Yes	Yes	Yes	No	Jan 2009
Intel Core 2 Duo processor T6600	2.2GHz	2MB	800MHz	Dual	35W	Yes	Yes	Yes	No	Jan 2009
Intel Core 2 Duo processor T8100	2.1GHz	3MB	800MHz	Dual	35W	Yes	Yes	Yes	No	Jan 2008
Intel Core 2 Duo processor T8300	2.4GHz	3MB	800MHz	Dual	35W	Yes	Yes	Yes	No	Jan 2008
Intel Core 2 Duo processor T9300	2.5GHz	6MB	800MHz	Dual	35W	Yes	Yes	Yes	No	Jan 2008
Intel Core 2 Duo processor T9500	2.6GHz	6MB	800MHz	Dual	35W	Yes	Yes	Yes	No	Jan 2008
Intel Core 2 Duo processor P7370	2.00GHz	3MB	1066MHz	Dual	25W	Yes	Yes	Yes	Yes	Sep 2008
Intel Core 2 Duo processor P7450	2.13GHz	3MB	1066MHz	Dual	25W	Yes	Yes	Yes	Yes	Jan 2009
Intel Core 2 Duo processor P8400	2.26GHz	3MB	1066MHz	Dual	25W	Yes	Yes	Yes	Yes	July 2008
Intel Core 2 Duo processor P8600	2.4GHz	3MB	1066MHz	Dual	25W	Yes	Yes	Yes	Yes	July 2008
Intel Core 2 Duo processor P8700	2.53GHz	3MB	1066MHz	Dual	25W	Yes	Yes	Yes	Yes	Dec 2008
Intel Core 2 Duo processor P9500	2.53GHz	6MB	1066MHz	Dual	25W	Yes	Yes	Yes	Yes	July 2008
Intel Core 2 Duo processor P9600	2.66GHz	6MB	1066MHz	Dual	25W	Yes	Yes	Yes	Yes	Dec 2008
Intel Core 2 Duo processor T9400	2.53GHz	6MB	1066MHz	Dual	35W	Yes	Yes	Yes	Yes	July 2008
Intel Core 2 Duo processor T9550	2.66GHz	6MB	1066MHz	Dual	35W	Yes	Yes	Yes	Yes	Dec 2008
Intel Core 2 Duo processor T9600	2.8GHz	6MB	1066MHz	Dual	35W	Yes	Yes	Yes	Yes	July 2008
Intel Core 2 Duo processor T9800	2.93GHz	6MB	1066MHz	Dual	35W	Yes	Yes	Yes	Yes	Dec 2008

U (Ultra Low Voltage)=<12 watts; L (Low Voltage)=12-19 watts; P =20-29 watts; T (Standard Voltage)=30-39 watts; X or QX=>40 watts

Processor generation	<i>T8100/T8300/T9300/T9500</i> : Penryn (Santa Rosa Refresh) ; <i>Others</i> : Penryn (Montevina)
Marketing name	Intel Core 2 Duo mobile processor
Core	Dual-core
Branding	Supports Intel Centrino® 2 Processor Technology or Intel Centrino 2 with vPro Processor Technology when hardware and software requirements met
Micro-architecture	Intel Core Micro-architecture
Intel Wide Dynamic Execution	Each core can complete up to four full instructions simultaneously using 14-stage pipeline
Intel Smart Memory Access	Hides memory latency
Intel Advanced Digital Media Boost	Accelerates execution of Streaming SIMD Extension (SSE2/3) instructions used in multimedia applications
Intel HD Boost	Streaming SIMD Extensions 4 (SSE4) and faster Super Shuffle Engine
Power management technology	Enhanced Intel SpeedStep® technology
Intel Dynamic Power Coordination	Coordinates Enhanced Intel SpeedStep™ Technology and idle power-management state transitions independently per core to help save power
Intel Deep Power Down Technology	Low-power state that allows both cores and L2 cache to be powered down when processor idle
Thermal management	Digital thermal sensor
Hyper-Threading	No
Total threads	Two threads (two cores with no Hyper-Threading support provide two logical processors)
Execute Disable (XD) Bit	Protects memory data areas from malicious software execution
Intel 64 Technology ¹	Intel 64 Technology (an extension to the IA-32 instruction set which adds 64-bit extensions to the x86 architecture)
Virtualization Technology	Intel Virtualization Technology (VT)
Intel Dynamic Acceleration	Intel Dynamic Acceleration (IDA) allows one core to deliver extra performance when other core is idle
Intel Trusted Execution Tech (TXT)	Provides a more secure platform with protection from software-based attacks with TXT-enabled OS or appl
L1 cache	64KB per core split between data cache (32KB) and instruction cache (32KB)
L1 data cache	2x32KB data cache, integrated
L1 instruction cache	2x32KB instruction cache, integrated
L2 cache - size	2MB, 3MB, or 6MB , full speed, shared between both cores (Intel Advanced Smart Cache)
L2 cache - data path	256-bit data path (32 bytes), 64 byte cache line size, 8-way set associative, integrated, unified (on die)
System bus (front side bus)	800MHz or 1066MHz (transfers data 4 times per clock), address bus transfers at 2 times per clock
Memory addressability	64GB memory addressability (but limited by chipset), 36-bit addressing
System bus - width	64-bit data path
Execution units per core	2 integer units, 1 floating point units, 1 load unit, 1 store unit
Math coprocessor	Pipelined floating point unit
Compatibility	Compatible with IA-32 software
Process technology	45nm
Thermal Design Power	<i>Pxxxx</i> : 25 watts; <i>Txxxx</i> : 35 watts
Package and connector	Socket P / Micro Flip-Chip Pin Grid Array (Micro-FCPGA) requires 479-pin surface mount Zero Insertion Force (ZIF) socket (mPGA479M socket) or Micro Flip-Chip Ball Grid Array (Micro-FCBGA) for surface mount (479-ball)
Chipset support	Mobile Intel 965 Express Chipset family; Mobile Intel 4 Series Chipset family ; other compatible chipsets