

Notebook Processor Tour

Introduction

Like desktop computers, a notebook processor/CPU (Central Processing Unit) can also be seen as the brain of a notebook and is the largest single determinant of system performance. Where it can differ from a desktop processor is in its advanced power management features for extended battery life. A longer battery life means you can use your computer without the help of an AC adapter for longer periods of time. Therefore, when making a decision about your prospective notebook processor, the two most important factors to pay attention to are performance and its power usage characteristics.

Special notebook processor technologies

To achieve extended battery life the manufacturers have developed special technologies such as EIST and PowerNow!

Enhanced Intel SpeedStep Technology

According to Intel, *“Enhanced Intel SpeedStep Technology (EIST) allows the system to dynamically adjust processor voltage and core frequency, which can result in decreased average power consumption and decreased average heat production”*.

With Enhanced SpeedStep technology power usage is more efficient. EIST is widely used in Intel notebook processor products such as the Core Duo, Core Solo and Pentium M.

AMD PowerNow! Technology

AMD PowerNow! Technology was developed by AMD and is used in most AMD notebook processor products such as the Mobile AMD Athlon 64, Turion 64 and Mobile Sempron. Like Intel Enhanced SpeedStep technology, it also allows the system to automatically alter the processor voltage and core frequency in the background resulting in optimized battery life and a notebook that runs cooler and quieter.

For more information regarding processor specifications and other useful tips, please see our CPU buying guide ([link to CPU buying guide](#))

Product Comparison

The following chart covers the most popular notebook CPUs on offer today:

Characteristics	Processor Series
High performance and long battery life	AMD Turion 64 Intel Core Duo Intel Core Solo Intel Pentium M
Ultra long battery life	LV/ULV Intel Pentium M

	ULV Intel Celeron M Intel Core Duo Low Voltage
High performance	Mobile AMD Athlon 64 Mobile Intel Pentium 4(HT)
Budget	Intel Celeron M Mobile AMD Sempron

Note: LV = Low Voltage processor, ULV = Ultra Low Voltage processor

Intel Pentium M Series



Intel Pentium M processors are designed for users requiring both high-performance and low power consumption for satisfyingly long battery life.

Processor name	Clock Speed	FSB	L2 Cache	TDP*
Intel Pentium M 780	2.26GHz	533MHz	2MB	27W
Intel Pentium M 770	2.13GHz	533MHz	2MB	27W
Intel Pentium M 760	2.0GHz	533MHz	2MB	27W
Intel Pentium M 750	1.86GHz	533MHz	2MB	27W
Intel Pentium M 740	1.73GHz	533MHz	2MB	27W
Intel Pentium M 730	1.6GHz	533MHz	2MB	27W
Intel Pentium M 765	2.1GHz	400MHz	2MB	21W
Intel Pentium M 755	2.0GHz	400MHz	2MB	21W
Intel Pentium M 745	1.8GHz	400MHz	2MB	21W
Intel Pentium M 735	1.7GHz	400MHz	2MB	21W
Intel Pentium M 725	1.6GHz	400MHz	2MB	21W
Intel Pentium M 715	1.5GHz	400MHz	2MB	21W
Intel Pentium M 705	1.5GHz	400MHz	1MB	24.5W
Intel Pentium Low Voltage 778	1.6GHz	400MHz	2MB	10W
Intel Pentium Low Voltage 758	1.5GHz	400MHz	2MB	10W
Intel Pentium Low Voltage 738	1.4GHz	400MHz	2MB	10W
Intel Pentium Low Voltage 718	1.3GHz	400MHz	1MB	12W
Intel Pentium Ultra Low Voltage 773	1.3GHz	400MHz	2MB	5W
Intel Pentium Ultra Low Voltage 753	1.2GHz	400MHz	2MB	5W
Intel Pentium Ultra Low Voltage 733	1.1GHz	400MHz	2MB	5W
Intel Pentium Ultra Low Voltage 723	1.0GHz	400MHz	2MB	5W
Intel Pentium Ultra Low Voltage 713	1.1GHz	400MHz	1MB	7w

*Lower is better

TIP: TDP

TDP or Thermal Design Power is defined a little differently by AMD and Intel, but when comparing products from a single brand, a lower TDP is more desirable

Intel Core Solo Series



The Core Solo processor provides high performance and long battery life and is the successor to the Intel Pentium M.

Processor name	Clock Speed	FSB	L2 Cache	TDP*
Intel Core Solo T1300	1.66GHz	667MHz	2MB	27W

*Lower is better

Intel Core Duo Series



High performance and long battery life are expected from its dual core architecture, as is outstanding multitasking and entertainment capabilities.

Processor name	Clock Speed	FSB	L2 Cache	TDP*
Intel Core Duo T2600	2.16GHz	667MHz	2MB	31W
Intel Core Duo T2500	2.0GHz	667MHz	2MB	31W
Intel Core Duo T2400	1.83GHz	667MHz	2MB	31W
Intel Core Duo T2300	1.66GHz	667MHz	2MB	31W
Intel Core Duo L2400	1.66GHz	667MHz	2MB	15W
Intel Core Duo L2300	1.5GHz	667MHz	2MB	15W

*Lower is better

Tip: Intel Core Series Processor naming convention

According to Intel, "Prefixes indicate a range of power within which each particular processor's specific power level resides. A 31W Intel Core Duo processor uses a "T" prefix because 31W falls between 25W and 49W. A 15W Intel Core Duo processor uses an "L" prefix because 15W falls between 15W and 24W."

The first number in the 4-digit numerical sequence uses “1” if the processor has one core and “2” if the processor is a dual core product. These processors are called the Core Solo and Core Duo respectively.

Intel Celeron M Series



For budget applications, it brings the best balance of performance and value.

Processor name	Clock Speed	FSB	L2 Cache	TDP*
Intel Celeron M 380	1.6GHz	400MHz	1MB	21W
Intel Celeron M 370	1.5GHz	400MHz	1MB	21W
Intel Celeron M 360	1.4GHz	400MHz	1MB	21W
Intel Celeron M 350	1.3GHz	400MHz	1MB	21W
Intel Celeron M Ultra Low Voltage 383	1.0GHz	400MHz	1MB	5W
Intel Celeron M Ultra Low Voltage 373	1.0GHz	400MHz	512KB	5W

*Lower is better

Mobile Intel Pentium 4 (HT) Series



High performance but with a higher power consumption rate than other Intel notebook processor lines, they are mainly used in mainstream or desktop replacement notebook computers.

Processor name	Clock Speed	FSB	L2 Cache	TDP*
Mobile Intel Pentium 4 HT 552	3.46GHz	533MHz	1MB	88W
Mobile Intel Pentium 4 HT 548	3.33GHz	533MHz	1MB	88W
Mobile Intel Pentium 4 HT 538	3.2GHz	533MHz	1MB	88W
Mobile Intel Pentium 4 HT 532	3.06GHz	533MHz	1MB	88W
Mobile Intel Pentium 4 HT 518	2.8Ghz	533MHz	1MB	88W

*Lower is better

AMD Turion 64 Series



AMD Turion 64 processors also provide high performance and satisfying battery time.

Processor name	Clock Speed	L2 Cache	TDP*
AMD Turion 64 ML-44	2.4GHz	1MB	35W
AMD Turion 64 ML-42	2.4GHz	512KB	35W
AMD Turion 64 ML-40	2.2GHz	1MB	35W
AMD Turion 64 ML-37	2.0GHz	1MB	35W
AMD Turion 64 ML-34	1.8GHz	1MB	35W
AMD Turion 64 ML-32	1.8GHz	512KB	35W
AMD Turion 64 ML-30	1.6GHz	1MB	35W
AMD Turion 64 ML-28	1.6GHz	512KB	35W
AMD Turion 64 MT-40	2.2GHz	1MB	25W
AMD Turion 64 MT-37	2.0GHz	1MB	25W
AMD Turion 64 MT-34	1.8GHz	1MB	25W
AMD Turion 64 MT-32	1.8GHz	512KB	25W
AMD Turion 64 MT-30	1.6GHz	1MB	25W
AMD Turion 64 MT-28	1.6GHz	512KB	25W

*Lower is better

Tip: AMD Turion 64 Series Processor naming convention

According to AMD, "The alpha-numeric processor model numbers consists of 2 letters followed by numbers. The letters indicate the processor class with the second letter designating increasing degree of mobility within the processor class as the letter approaches Z. For example, model MT-xx designates greater relative mobility than model ML-xx".

AMD's MT-xx series processors have a TDP of 25w, while its ML-xx series processors have a TDP of 35w.

Mobile AMD Sempron Series



The Mobile AMD Sempron processor is designed for budget applications and provides an excellent balance between performance and value.

Processor name	Clock Speed	L2 Cache	TDP*
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Mobile AMD Sempron 3400+ for Full-size Notebooks	2.2GHz	256KB	62W
Mobile AMD Sempron 3300+ for Full-size Notebooks	2.0GHz	128KB	62W
Mobile AMD Sempron 3100+ for Full-size Notebooks	1.8GHz	256KB	62W
Mobile AMD Sempron 3000+ for Full-size Notebooks	1.8GHz	128KB	62W
Mobile AMD Sempron 2800+ for Full-size Notebooks	1.6GHz	256KB	62W
Mobile AMD Sempron 2600+ for Full-size Notebooks	1.6GHz	128KB	62W
Mobile AMD Sempron 3300+ for Thin and Light Notebooks	2.0GHz	128KB	25W
Mobile AMD Sempron 3100+ for Thin and Light Notebooks	1.8GHz	256KB	25W
Mobile AMD Sempron 3000+ for Thin and Light Notebooks	1.8GHz	128KB	25W
Mobile AMD Sempron 2800+ for Thin and Light Notebooks	1.6GHz	256KB	25W
Mobile AMD Sempron 2600+ for Thin and Light Notebooks	1.6GHz	128KB	25W

*Lower is better

Mobile AMD Athlon 64 Series



Mobile AMD Athlon 64 processors are very impressive performers but consume more power than their AMD brethren. Like the Mobile Intel Pentium 4 (HT) processor, the Mobile AMD Athlon 64 processor is mainly used in mainstream or desktop replacement notebook computers.

Processor name	Clock Speed	L2 Cache	TDP*
Mobile AMD Athlon 64 3700+	2.4GHz	1MB	81.5W
Mobile AMD Athlon 64 3400+	2.2GHz	1MB	81.5W
Mobile AMD Athlon 64 3200+	2.0GHz	1MB	81.5W
Mobile AMD Athlon 64 3000+	1.8GHz	1MB	81.5W

*Lower is better

Other Info

What is Centrino mobile technology?

According to Intel, *"Intel Centrino mobile technology combines Intel's best technologies for notebooks. It delivers outstanding mobile performance, great battery life, integrated wireless LAN capability and thin and light notebook designs".*

Today there are three Intel Centrino platforms known as Intel Centrino Duo mobile technology, Intel Centrino mobile technology (with Intel Core Solo processor) and Intel Centrino mobile technology (with Intel Pentium M processor).

Intel Centrino Duo mobile technology



The Intel Centrino Duo mobile technology platform is the newest mobile platform offering enhanced capabilities for outstanding multitasking, entertainment and communication capabilities. The complete Intel Centrino Duo mobile technology platform consists of Intel Core Duo processor, Mobile Intel 945 Express family chipset and Intel PRO/Wireless 3945ABG network connection.

Intel Centrino mobile technology (with Intel Core Solo processor)



Intel Centrino mobile technology (with Intel Core Solo processor) offers enhanced capabilities for outstanding on-the-go performance, low power usage and communication capabilities. It consists of the Intel Core Solo processor, Mobile Intel 945 Express family chipset and Intel PRO/Wireless 3945ABG network connection.

Intel Centrino mobile technology (with Intel Pentium M processor)



Intel Centrino mobile technology (with Intel Pentium M processor) offers integrated performance for mobile computing and communication. It consists of the Intel Pentium M processor, Mobile Intel 915 or 855 family chipset and Intel PRO/Wireless 2915ABG, 2200BG or 2100 network connection.