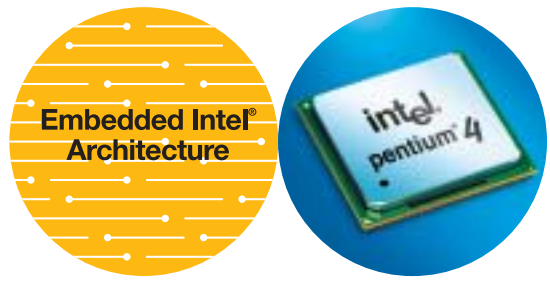

Move Up

Intel® Pentium® 4 Processor

Intel® Pentium® 4 processors deliver the processing performance your customers need for today's and tomorrow's demanding embedded products. Intel's validated processor/chipset combinations provide integrated graphics and display capabilities, and flexible peripheral connectivity. They are your gateway to a new generation of highly advanced, differentiated and scalable embedded solutions. For the performance you need, move up now to the Intel Pentium 4 processor.

Intel® Pentium® 4 Processor-based Platforms Features/Benefits

Feature	OEM Benefits	End User Benefits	Perf.	L/L	TCO	TTM
400/533 System Bus	Allows board scalability by selecting processor and memory. New models can be introduced quickly, with minimal re-design effort	System performance/cost can be customized to fit the application. System can be field-upgraded to increase performance. Systems with different performance may contain the same system board facilitating service and parts inventories.	●	●	●	▼
USB 2.0 support	Allows latest, next generation peripherals based on USB 2.0. Better cable management and lower total cost of ownership (TCO)	Allows latest, next-generation peripherals based on USB 2.0. Better cable management and lower total cost of ownership (TCO)	●	●	●	
GB Ethernet	Capability to connect to latest generation high bandwidth network.	Capability to connect to latest generation high bandwidth network.	●			
2.0GHz+ frequency	Run latest O/S and applications; best performance available; TCO	Run latest O/S and applications; best performance available; will remain productive over longer life.	●	●	■	
DDR 266/333 memory support	Latest memory technology; lower cost and longer life availability	Latest memory technology; lower cost and longer life availability	●	●	●	
Validated CPU/ Chipset combinations	Simplify test and validation	Ensure that systems operate reliably and efficiently			■	
Reference Designs, Embedded Thermal Solutions, Design Guides targeted to embedded markets, & Development Kits	Speed up design and reduce errors				▼	▼
On embedded Intel® Architecture roadmap	5–7 year support	5–7 year support		●	■	
Fully compatible with existing Intel® Architecture-based software	New product features can be added more quickly and less expensively	Software upgrades can be developed and validated quickly from multiple vendors		■	●	▼
Intel® NetBurst™ architecture	Provides software and architecture scalability for future performance processors	Provides software and architecture scalability for future performance processors	●	●	●	
Memory address-ability to 64GB of physical memory	Scalable to future chipsets and denser memory systems.	Support memory-intensive applications	●	●	▼	▼

Intel® Pentium® 4 Processor with Intel® 845 Chipset or Intel® 845E Chipset or Intel® 845GV Chipset Feature/Benefits

Feature	OEM Benefits	End User Benefits	Perf.	L/L	TCO	TTM
Integrated graphics	One less component to worry about for long life; Cost, footprint, and long life availability advantage	One less component to worry about for long life; Cost, footprint, and long life availability advantage		●	●	
ECC, fault analysis and recovery for system and L2 cache	Data integrity and reliability features	Data integrity and reliability features	●			
400/533 System Bus	Allows board scalability by selecting performance and price point of processor and memory. New models can be introduced quickly, with minimal re-design effort	System performance and cost can be customized to fit the application. System can be field-upgraded to increase performance. Systems with different performance may contain the same system board facilitating service and parts inventories.	●	●	●	▼

Chart Legend

Perf. = Performance **L/L =** Long Life **TCO =** Total Cost of Ownership **TTM =** Time to Market

● OEM & End User Benefit ▼ OEM User Benefit ■ End User Benefit

Intel® Pentium® 4 Processor and Intel® 852GME Chipset Feature/Benefits

Feature	OEM Benefits	End User Benefits	Perf.	L/L	TCO	TTM
Integrated graphics	One less component to worry about for long life; Cost, footprint, and long life availability advantage	One less component to worry about for long life; Cost, footprint, and long life availability advantage	▼	●	●	▼
ECC, fault analysis and recovery for system and L2 cache	Data integrity and reliability features	Data integrity and reliability features	●			
533 System Bus	Allows faster system and memory transfers. Fully utilizes DDR-266 capabilities.	Allows faster system and memory transfers. Fully utilizes DDR-266 capabilities.	●	●		
Dual display	Allows more real-time interfaces for end users	Allows more real-time interfaces for end users			●	
LVDS/DVO	Allows for flat panel displays. Integration reduces board and system cost, enables smaller footprint, and provides advantage of long life availability.	Allows for flat panel displays. Integration reduces board and system cost, enables smaller footprint, and provides advantage of long life availability.			●	
Validated with Intel 852GME chipset	Intel® 852GME scalability from Intel® Celeron® Processor 2.0-3+, Intel® Pentium® 4 Processor 2.4/2.8 GHz; TCO				▼	▼
Intel® 852GME scalability from Intel® Celeron® Processor 2.0-3+, Pentium 4 Processor 2.4/2.8 GHz Validated		System performance and cost can be customized to fit the application. System can be field-upgraded to increase performance. Systems with different performance may contain the same system board facilitating service and parts inventories.	■	■	■	

Intel Pentium® 4 Processor-based Platform Features at a Glance

Feature	Intel® Pentium® 4 Processor with Intel® 852GME (ICH4) Chipset	Intel® Pentium® 4 Processor and Intel® 845 (ICH2), 845E, 845GV (ICH4) chipsets	Mobile Intel® Pentium® 4 Processor—M and Intel® 845E (ICH4) Chipset
CPU Features			
Process	.13u	.13u	.13u
Package(s)	FC-PGA2	FC-PGA2	FC-PGA2
L2 cache)	512k	512k	512k
FSB speed	400 / 533MHz	400 / 533MHz	400MHz
Performance Speeds	2.0, 2.4, 2.6 GHz	2.0, 2.4, 2.6 GHz	1.7 and 2.2 GHz
Performance Vcc	~1.525 V (optimized VID)	~1.525 V (optimized VID)	1.3 V
Performance TDP	54.3-62.6W	54.3-62.6W	30, 35W
TjMax (CPU)	Tc MAX: 69-72°C	Tc MAX: 69-72°C	100°C
SSE2 support	Yes	Yes	Yes
Enhanced Intel Speedstep® technology	No	No	Yes
On Die Thermal Monitoring	Yes	Yes	Yes
FSB parity	No	No	No
MCH Features			
DDR 200	Yes	Yes	Yes
DDR 266	Yes	Yes	Yes
DDR 333	Yes	Yes (845GV)	No
DDR2 400	No	No	No
Channel memory	Single	Single	Single
ECC memory	Yes with int gfx only	Yes (845E)	Yes (845E)
Integrated graphics	Yes	Yes (845GV)	No
AGP Port	Yes	Yes	Yes
Dual Independent Display support	Yes	No	No
Hub link interface	1.5	1.5	1.5
PCI Express ports	No	No	No
ICH Features			
AC97	Yes	Yes	Yes
ATA 100	Yes (2 channels)	Yes	Yes
SATA-150	No	No	No
USB	Yes 2.0 (6 ports)	Yes 2.0 (6 ports)	Yes 2.0 (6 ports)
PCI	Yes 32/33	Yes 32/33	Yes 32/33
PCI-X	No	No	No
GPIO	36 (19 dedicated)	No	No
LPC	Yes	Yes	Yes
Serial IO	No	Yes	Yes
Watch Dog Timer	No	No	No
Port 60/64 Emulation	No	No	No
Other			
Customer Reference Boards	Yes	Yes	Yes
Development Kit	Yes	Yes	Yes
Linux*	Yes	Yes	Yes
Microsoft*	Yes	Yes	Yes
QNX*	TBD	Yes	Yes
VxWorks*	TBD	Yes	Yes

Chart Legend

Perf. = Performance **L/L =** Long Life **TCO =** Total Cost of Ownership **TTM =** Time to Market

● OEM & End User Benefit ▼ OEM User Benefit ■ End User Benefit

To learn more about the Intel Pentium® 4 Processor, visit our site on the Internet at http://developer.intel.com/design/intarch/pentium4/pentium4.htm.