



Six-Core AMD Opteron™ Processor

What's you should know about the Six-Core AMD Opteron Processor (Codenamed "Istanbul")

- **Six-Core AMD Opteron Processor Versatility**
Six-Core Opteron processors offer an optimal mix of performance, energy efficiency, and cost effectiveness. These processors provide users with six-core performance within the same power and thermal envelope as Quad-Core AMD Opteron processor-based servers.
- **Socket Compatibility and Plug Upgradeability**
These Opteron processors can be used to upgrade qualified Quad-Core processor-based servers. Compatibility may extend the life and value of your investments in server infrastructure. (BIOS update required.)
- **HT Assist and Integrated Memory Controllers**
HT Assist accelerates multi-processor communications. Improved bus efficiency results in faster queries in 4-way servers, which can mean improved performance in compute-intensive applications. Integrated memory controllers based on Direct Connect Architecture help speed throughput for the most data-intensive applications.
- **Cost Advantages**
Six-Core Opteron Processors offer performance that handles real-world workloads and provides excellent energy efficiency. The combination of performance and energy-efficiency means superior value, helping you achieve more with every server computing dollar.

Top-line performance that's bottom-line efficient

Expert included.



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Product Features

- **HYPERTRANSPORT™ TECHNOLOGY ASSIST [HT ASSIST]**
Increases HyperTransport™ technology efficiency by reducing probe traffic and resolving probe issues more quickly
- **AMD-V™ WITH RAPID VIRTUALIZATION INDEXING**
Silicon-based feature that improves virtualization performance, enabling more virtual machines to run per server
- **AMD WIDE FLOATING POINT ACCELERATOR**
Offers significantly improved performance on HPC, scientific, and workstation applications
- **AMD-P Power Savings Features:**
 - **ENHANCED AMD POWERNOW!™ TECHNOLOGY**
works with the operating system to provide performance-on-demand capabilities for precise power management, processor power savings, and low TCO
 - **INDEPENDENT DYNAMIC CORE TECHNOLOGY**
can vary clock frequency per core based on workload to help reduce power consumption and thermal output
 - **AMD COOLCORE™ TECHNOLOGY**
automatically turns off parts of the processor core when they are not in use, offering reduced processor power consumption
 - **AMD SMART FETCH TECHNOLOGY**
allows unused cores to enter a deeper sleep state and draw less power, reducing CPU power consumption
 - **AMD POWERCAP MANAGER**
allows the user to lock in p-states to cap off power consumption for added power efficiency
 - **AMD BALANCED SMART CACHE**
offers better support for multi-threaded environments with a highly efficient cache structure that helps reduce the latency of accessing main memory
 - **AMD MEMORY OPTIMIZER TECHNOLOGY**
increases memory throughput and supports memory-intensive applications (compared to Second-Generation AMD Opteron processors)
 - **DUAL DYNAMIC POWER MANAGEMENT™**
separately powered memory controller and processor core allows for greater application performance while providing more opportunities to save system power with AMD PowerNow!™ technology

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Product Specifications

Cache Size	Total Cache: 9.9MB L1 Cache: 64KB (Data) + 64KB (Instructions) per core L2 Cache: 512KB per core L3 Cache: 6144MB
Process Technology	45-nanometer SOI (silicon-on-insulator) technology
HyperTransport™ Technology Links	Three 16-bit/16-bit links @ up to 4.8GT/s for Socket F (1207)
Memory	Integrated DDR2 memory controller – up to 12.8GB/s memory bandwidth per CPU for Socket F (1207)
Types of Memory	Registered ECC DDR2-533, DDR2-667, DDR2-800 for Socket F (1207)
Die Size	346mm ²
Packaging	Socket F (1207) – 1207-pin organic Land Grid Array (LGA)

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Six-Core AMD Opteron Processor Product Model Comparison

	Model Number	Core Frequency	I/O Bus Frequency *	Max I/O Bandwidth	CMOS Tech	L2 Cache	L3 Cache	ACP**
4 Socket	8435	2.6GHz	2.2GHz	57.6GB/s	45 nm SOI	512KB/core	6MB	75W
	8431	2.4GHz	2.2GHz	57.6GB/s	45 nm SOI	512KB/core	6MB	75W
2 Socket	2435	2.6GHz	2.2GHz	57.6GB/s	45 nm SOI	512KB/core	6MB	75W
	2431	2.4GHz	2.2GHz	57.6GB/s	45 nm SOI	512KB/core	6MB	75W
	2427	2.2GHz	2.2GHz	57.6GB/s	45 nm SOI	512KB/core	6MB	75W

* Using HyperTransport™ technology
 ** ACP stands for Average CPU power. See www.amd.com/ACP

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Contact Silicon Mechanics

For answers regarding processor selection or other questions,
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