Six-Core AMD Opteron™ Processor

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
Six-Core AMD Opteron™ Processor

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
## Six-Core AMD Opteron™ Processor

### Product Specifications

<table>
<thead>
<tr>
<th></th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cache Size</strong></td>
<td>Total Cache: 9.9MB&lt;br&gt;L1 Cache: 64KB (Data) + 64KB (Instructions) per core&lt;br&gt;L2 Cache: 512KB per core&lt;br&gt;L3 Cache: 6144MB</td>
</tr>
<tr>
<td><strong>Process Technology</strong></td>
<td>45-nanometer SOI (silicon-on-insulator) technology</td>
</tr>
<tr>
<td><strong>HyperTransport™ Technology Links</strong></td>
<td>Three 16-bit/16-bit links @ up to 4.8GT/s for Socket F (1207)</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>Integrated DDR2 memory controller – up to 12.8GB/s memory bandwidth per CPU for Socket F (1207)</td>
</tr>
<tr>
<td><strong>Types of Memory</strong></td>
<td>Registered ECC DDR2-533, DDR2-667, DDR2-800 for Socket F (1207)</td>
</tr>
<tr>
<td><strong>Die Size</strong></td>
<td>346mm²</td>
</tr>
<tr>
<td><strong>Packaging</strong></td>
<td>Socket F (1207) – 1207-pin organic Land Grid Array (LGA)</td>
</tr>
</tbody>
</table>
## Six-Core AMD Opteron™ Processor

### Six-Core AMD Opteron Processor Product Model Comparison

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Core Frequency</th>
<th>I/O Bus Frequency *</th>
<th>Max I/O Bandwidth</th>
<th>CMOS Tech</th>
<th>L2 Cache</th>
<th>L3 Cache</th>
<th>ACP**</th>
</tr>
</thead>
<tbody>
<tr>
<td>8435</td>
<td>2.6GHz</td>
<td>2.2GHz</td>
<td>57.6GB/s</td>
<td>45 nm SOI</td>
<td>512KB/core</td>
<td>6MB</td>
<td>75W</td>
</tr>
<tr>
<td>8431</td>
<td>2.4GHz</td>
<td>2.2GHz</td>
<td>57.6GB/s</td>
<td>45 nm SOI</td>
<td>512KB/core</td>
<td>6MB</td>
<td>75W</td>
</tr>
<tr>
<td>2435</td>
<td>2.6GHz</td>
<td>2.2GHz</td>
<td>57.6GB/s</td>
<td>45 nm SOI</td>
<td>512KB/core</td>
<td>6MB</td>
<td>75W</td>
</tr>
<tr>
<td>2431</td>
<td>2.4GHz</td>
<td>2.2GHz</td>
<td>57.6GB/s</td>
<td>45 nm SOI</td>
<td>512KB/core</td>
<td>6MB</td>
<td>75W</td>
</tr>
<tr>
<td>2427</td>
<td>2.2GHz</td>
<td>2.2GHz</td>
<td>57.6GB/s</td>
<td>45 nm SOI</td>
<td>512KB/core</td>
<td>6MB</td>
<td>75W</td>
</tr>
</tbody>
</table>

* Using HyperTransport™ technology  
** ACP stands for Average CPU power. See www.amd.com/ACP
Six-Core AMD Opteron™ Processor

For answers regarding processor selection or other questions, contact one of the Experts at Silicon Mechanics:

Email: sales@siliconmechanics.com

Toll Free: 866.352.1173

www.siliconmechanics.com