OPTIMIZE YOUR DATACENTER WITH NO-COMPROMISE 1-SOCKET AMD EPYC PROCESSOR-BASED SERVERS

Why buy 2 when you only need 1? AMD EPYC processors enable a no-compromise 1-socket server.

MORE WORK, LESS COST
In today’s datacenters, getting more work done in less space with fewer servers is essential. Using a 1-socket server in place of 2-socket servers can mean lower capital costs and more importantly impact operational costs including management, power, and cooling.

DATACENTER INFRASTRUCTURE CHALLENGES WITH 1-SOCKET SERVERS
Many organizations compromise with 2-socket servers to overcome fundamental gaps in a 1-socket server’s balance of CPU, memory, and I/O resources.

WHY AMD EPYC NO-COMPROMISE 1-SOCKET SERVER?
AMD EPYC™ processor-based 1-socket servers eliminate the compromises that drive many organizations to purchase 2-socket servers. Now you can:

- Efficiently run many workloads and applications formerly requiring 2-socket-servers.
- Enable higher utilization levels, enhance performance, and help reduce costs—all while bringing an optimal balance of resources to your applications with unprecedented security.

AMD EPYC FEATURES

ENHANCED CORE DENSITY
- 8 to 32 cores in a single socket
- More cores than Intel Xeon Gold 5000 series CPUs used in two-socket servers

OUTSTANDING MEMORY CAPACITY
- Run large virtualized workloads and enterprise applications with 2 TB of memory per socket
- Speed the flow of data with 8 memory channels

INDUSTRY-LEADING PER-SOCKET I/O
- 128 lanes of PCIe® bandwidth
- Up to 32 NVMe and SATA devices total
- Connect directly to the CPU with no latency-inducing PCIe switches or expensive HBAs

INDUSTRY’S FIRST HARDWARE-EMBEDDED SECURITY PROCESSOR
- Delivers a superior level of security
- Secure root-of-trust technology
- Full memory encryption
- No software modifications necessary
PROVEN ADVANTAGES

Compare a 32-core AMD EPYC 7551P processor-based 1-socket server with a 2-socket server based on Intel Xeon Platinum 5118 CPUs and reap several benefits:

- **33 PERCENT MORE CORES**¹
- **33 PERCENT MORE MEMORY CAPACITY**²
- **37 PERCENT MORE PROCESSOR PERFORMANCE PER DOLLAR**³
- **11 PERCENT MORE PROCESSOR PERFORMANCE**⁴ Based on industry-standard SPECint®_rate_base2006 estimated performance results.
- **20 PERCENT LESS PROCESSOR POWER CONSUMPTION**⁵

WHAT THIS MEANS FOR YOU

Most 1-socket servers are constrained. AMD EPYC processor-based 1-socket servers delivers a better balance of resources to your datacenter, eliminating much of the need for 2-socket servers while helping save you both capital and operating costs. The result: lower total cost of ownership.

SINGLE-SOCKET SERVER PROCESSORS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>2P/1P</th>
<th>CORES/THREADS</th>
<th>BASE FREQ. (GHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7551P</td>
<td>1P</td>
<td>32/64</td>
<td>2.00</td>
</tr>
<tr>
<td>7401P</td>
<td>1P</td>
<td>24/48</td>
<td>2.00</td>
</tr>
<tr>
<td>7351P</td>
<td>1P</td>
<td>16/32</td>
<td>2.40</td>
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<tr>
<td>7251</td>
<td>2P/1P</td>
<td>8/16</td>
<td>2.10</td>
</tr>
</tbody>
</table>

1-SOCKET SERVER BENEFITS

A 1-socket server based on AMD EPYC processors can help lower total cost of ownership through lower capital and operating cost opportunities.

LOWER CAPITAL COST OPPORTUNITIES

- NO NEED FOR A SECOND CPU
- NO NEED FOR A SECOND SOCKET AND HEAT SINKS
- NO NEED FOR A PLATFORM CONTROLLER HUB (PCH)
- SMALLER BOARD FORM FACTOR

LOWER OPERATING COST OPPORTUNITIES

- HIGHER UTILIZATION
- LOWER PROCESSOR POWER REQUIREMENTS
- LOWER DATA CENTER COOLING COSTS
- NO PCH TO POWER AND COOL
- FEWER BOARD COMPONENTS TO POWER AND COOL

FOR MORE INFORMATION

For more information visit [amd.com/EPYC](http://amd.com/EPYC).

FOOTNOTES

1. A single AMD EPYC™ 7551P processor includes up to 32 CPU cores versus two Xeon Gold 5118 processors with 12 CPU cores each. NAP-37

2. A single AMD EPYC™ 7551P processor offers up to 128GB LRDIMM in 2 DIMM per channel config, so up to 256GB/channel x 8 channels = 2.048 TB, versus a single Xeon Gold 5118 processor at 768Gb/processor, so up to 1.54 TB for a 2-socket system. NAP-38

3. Based on estimated SPECint®_rate_base2006 scores. In AMD internal testing using AMD’s “Ethanol” reference system with Ubuntu 16.04, GCC-02 v6.1, 256GB 2Rx5 PC4-2667 (running at 2400), 1 x 500GB SSD, the 1P EPYC 7551P system scored 697 (EPYC 7551P 1ku price $2100); versus 2P Xeon Gold 5118-based Intel S2600WFT system with Ubuntu 16.04, GCC-02 v6.1, 392GB DDR4 2r2400, 2 x 500Gb SSD score of 629 (Xeon 5118 price $1273 each x 2, plus $57 C620 chipset, per ark.intel.com on 8-30-17). SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. See [www.spec.org](http://www.spec.org). NAP-40

4. Based on estimated SPECint®_rate_base2006 scores. In AMD internal testing using AMD’s “Ethanol” reference system with Ubuntu 16.04, GCC-02 v6.1, 256GB 2Rx5 PC4-2667 (running at 2400), 1 x 500GB SSD, the 1P EPYC 7551P system scored 697; versus 2P Xeon Gold 5118-based Intel S2600WFT system with Ubuntu 16.04, GCC-02 v6.1, 392GB DDR4 2r2400, 2 x 500Gb SSD score of 629. SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. See [www.spec.org](http://www.spec.org). NAP-39

5. A single EPYC 7551P TDP is 180w, versus 2P Xeon Gold 5118 at 105w each plus a 15w C 621 chipset. NAP-41

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