The AMD Opteron™ 6000 Series platform is the server platform you can count on as real-world workloads become increasingly complex and demanding.

### AMD Opteron™ 6100 Series Processor

![AMD Opteron™ 6100 Series Processor](image)

### End User Benefits

- **Performance for Demanding Workloads** — Match tough workloads with the right-fit server platform, and realize superior performance in memory and compute intensive workloads.

- **Consistent Platform that Scales** — Take control now with Direct Connect 2.0 architecture consistency, including power, virtualization and memory innovations, and socket compatibility with planned AMD Opteron™ 6200 Series processor.

- **Business Value Without Compromise** — Gain advantages normally reserved for high-end systems, with exceptional value, low total cost of ownership, and generational consistency.

### Product Features

#### Direct Connect Architecture 2.0:

- Quad Channel Memory Support
- Support for R/U-DDR3 up to 1333 Memory
- HyperTransport™ Technology Assist (HT Assist)
- HyperTransport™ 3.0 Technology (HT3)

#### AMD-P 2.0:

- Advanced Platform Management Link (APML)
- AMD CoolSpeed Technology
- C1E
- Support for LV-DDR3 Memory

#### AMD Virtualization™ (AMD-V™) Technology 2.0

- I/O Level Virtualization
- AMD-V with Rapid Virtualization Indexing
- Tagged TLB
- AMD-V Extended Migration

#### AMD-P 2.0 Power Savings Features:

- APML (Advanced Platform Management Link) provides an interface for processor and Systems Management monitoring and controlling of system resources such as platform power consumption via p-state limits and CPU thermal to closely monitor power and cooling.

- AMD CoolSpeed Technology reduces p-states when a temperature limit is reached to allow a server to operate if the processor's thermal environment exceeds safe operational limits.

- C1E provides a sleep state that can equate to significant power savings in the datacenter depending on system configuration.

- LV-DDR3 memory support helps to reduce overall system power consumption.

**AMD-V** 2.0 supports I/O level virtualization to provide direct control of device by a VM and improve I/O performance within a virtual machine.

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1. BIOS update is required
2. Based on quad channel DDR3-1333 for AMD Opteron™ 6100 Series processor vs. dual channel DDR2-800 for Six-Core AMD Opteron™ processor
3. In APML-enabled platforms
4. Enabled by the SR5690/SR5670/SR5650/SR5610 chipsets
AMD Opteron™ 6100 Series Processor Product Specifications

Cache Sizes

- **Total Cache:** 19.6MB (12 core), 17.1MB (8 core)
- **L1 Cache:** 64KB (Data) + 64KB (Instruction) (per core)
- **L2 Cache:** 512KB (per core)
- **L3 Cache:** 12MB (per socket)

Process Technology

- 45-nanometer SOI (silicon-on-insulator) technology

HyperTransport™ technology links

- Four x16 links @ up to 6.4GT/s per link

Memory

- Integrated DDR3 memory controller – With DDR3-133 support up to 42.7 GB/s memory bandwidth per CPU for Socket G34

Types of Memory

- Support for unregistered DIMMs up to PC2 8500 (DDR2-1066MHz) and PC3 10600

Die Size

- 346mm² per die

Packaging

- Socket G34 - 1944-pin organic Land Grid Array (LGA)

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AMD Opteron™ 6100 Series Platform Quick Reference Guide

**Model Number | Core Count | Core Frequency | I/O Bus Frequency* | Max I/O Bandwidth | CMOS Tech | L2 Cache | L3 Cache | ACP**
---|---|---|---|---|---|---|---|---
6176 SE | 12 | 2.3GHz | 1.8GHz | 102.4GB/s | 45 nm SOI | 512KB/core | 12MB | 105 W
6174 | 12 | 2.2GHz | 1.8GHz | 102.4GB/s | 45 nm SOI | 512KB/core | 12MB | 80 W
6172 | 12 | 2.1GHz | 1.8GHz | 102.4GB/s | 45 nm SOI | 512KB/core | 12MB | 80 W
6168 | 12 | 1.9GHz | 1.8GHz | 102.4GB/s | 45 nm SOI | 512KB/core | 12MB | 80 W
6166 | 8 | 2.4GHz | 1.8GHz | 102.4GB/s | 45 nm SOI | 512KB/core | 12MB | 80 W
6164 HE | 8 | 2.3GHz | 1.8GHz | 102.4GB/s | 45 nm SOI | 512KB/core | 12MB | 80 W
6162 HE | 8 | 2.0GHz | 1.8GHz | 102.4GB/s | 45 nm SOI | 512KB/core | 12MB | 80 W
6164 HE | 12 | 1.7GHz | 1.8GHz | 102.4GB/s | 45 nm SOI | 512KB/core | 12MB | 65 W
6162 HE | 8 | 2.0GHz | 1.8GHz | 102.4GB/s | 45 nm SOI | 512KB/core | 12MB | 65 W
6124 HE | 8 | 1.8GHz | 1.8GHz | 102.4GB/s | 45 nm SOI | 512KB/core | 12MB | 65 W

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

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HyperTransport™ technology (5.2GT/s)

- HyperTransport error handling, PCIe® Advanced Error Reporting, PCIe® end-to-end Cycle Redundancy Check

Max. TDP/Idle

- 13W/7.1W

Process Technology

- TSMC 65nm

Package

- FC6BA

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SP5100 Product Specifications—Southbridge

| USB ports | 12 USB 2.0 + 2 USB 1.1 |
| PCI Bus support | PCI rev 2.3 |
| Serial ATA | SATA 3.0Gb/s with AHCI 1.1 |
| SW RAID Support | Via DoHill RAID Stac |
| SATA Ports | 6 (can be independently disabled) |
| Max. TDP/Idle | 4W/4W |
| Process Technology | TSMC 33um |
| Package | 52B ball FCBGA, 29x29mm, 0.8mm pitch |

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