**AMD Opteron™ Processor-based Server**

- **HyperTransport™ Technology**
  - At up to 6.4GB/s bandwidth per link, designed to provide a high-speed connection between processors and core logic with sufficient bandwidth for supporting new and existing interconnects

**Intel Xeon MP Processor-based Server**

- **IA32 Architecture**
  - High-performance 32-bit computing only
  - Businesses needing 64-bit benefits must switch to a new architecture

**Integrated Memory Controller**

- Memory is directly connected to the CPU providing optimized memory performance
- Provides low-latency memory access and bandwidth that scales as processors are added

- **Primary Bus Technology**
  - At up to 6.4GB/s bandwidth per link, designed to provide a high-speed connection between processors and core logic with sufficient bandwidth for supporting new and existing interconnects

---

### AMD64 with Direct Connect Architecture

- Direct connection of CPUs for up to 8 sockets
- Provides simultaneous high-performance 32- and 64-bit computing
- Increases memory performance, provides more balanced I/O throughput, and allows for more linear symmetrical multiprocessing

### Memory Access Technology

- **Integrated Memory Controller**
  - Memory is directly connected to the CPU providing optimized memory performance
  - Provides low-latency memory access and bandwidth that scales as processors are added

**“Northbridge”-style Memory Controller via Front Side Bus**

- Passage through memory controller hub delays memory reads
- Processors compete for FSB bandwidth
- 8-socket solutions require even more chips

**Proprietary Hub I/O Buses**

- Bridge and hub devices can be overwhelmed by the I/O demands of attached peripherals

---

* AMD-8131™ HyperTransport™ PCI-X Tunnel
* AMD-8111™ HyperTransport I/O Hub

---

* ServerWorks CMIC HE Memory Controller Hub (MCH)
* ServerWorks CIQBT-X 64-bit PCI/PCI-X Controller Hub
* ServerWorks REMC Memory Address Buffer