



AMD Opteron™ 4100 Series Processor

What's new in the AMD Opteron™ 4100 Series Processor (Codenamed "Lisbon")?

Platform	Processor	Socket	Chipset
Opteron 4000 <i>(codenamed "San Marino" or "Adelaide")</i>	Opteron 4100 <i>(codenamed "Lisbon")</i>	C32	56x0 / 5100

- **4- or 6-Core AMD Opteron™ Processors on the AMD Opteron 4000 Series platforms (codenamed "San Marino" and "Adelaide") with the AMD SR56x0 / SP5100 Chipset**
- **New Power Management Features**
 - **Cool Speed**
Cool Speed protects processor integrity by reducing power states when a temperature limit is reached.
 - **C1E**
C1E promotes significant power savings by detecting when processor cores are idle: HyperTransport links are powered down, and the cores go into a deeper sleep state.
 - **Enhanced APM (Advanced Platform Management Link) with Precision Thermal Monitor**
APM is the interface for monitoring and controlling system resources, and Precision Thermal Monitor closely monitors power/cooling, and proactively alerts the Base Management Controller (BMC).
- **Memory: Dual Channel U/RDDR3 up to 1066 MHz (Adelaide), up to 1333MHz (San Marino)**
- **HyperTransport: 2x HT3 (HT 3.0), with up to 25.6 GB/s at 6.4 GT/s per link**
- **Cache: 6MB L3 cache per socket**

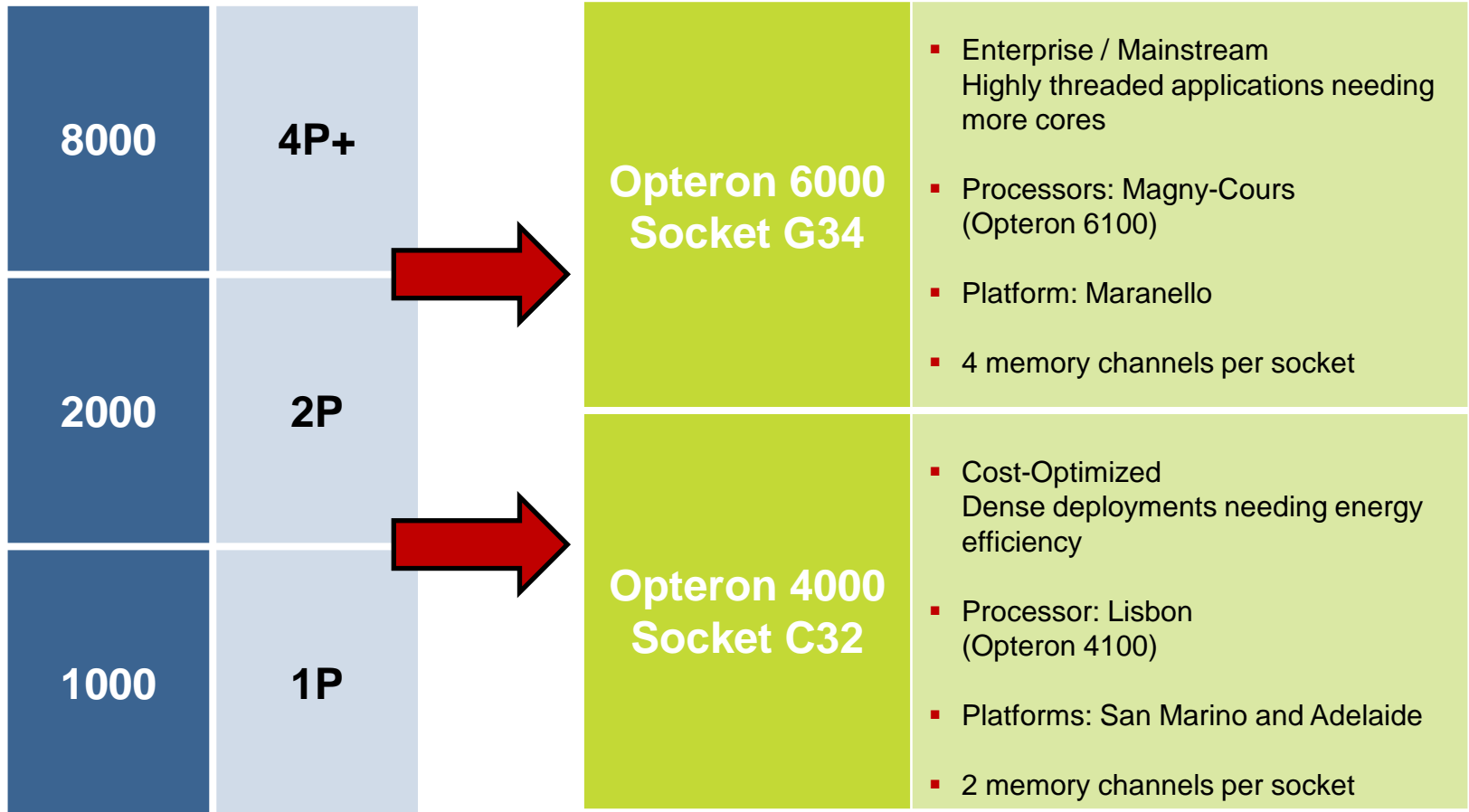
The server platform you can count on as real-world workloads become increasingly complex and demanding

Expert included.



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Series Transitions: AMD Opteron Server Roadmap



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Product Specifications – San Marino Platform

Process	ACP ¹	Model	Clock Frequency (GHz)	Cores	L2 Cache	L3 Cache	Max Memory Speed	System Bus Speed	
45nm	75W	4184	2.8	6	6 x 512K	6 MB	1333 MHz	6.4 GT/s	
		4180	2.6						
		4130 ⁴	2.6	4	4 x 512K				
		4122 ⁴	2.2						
	50W	4176 HE	2.4	6	6 x 512K	6 MB	1333 MHz	6.4 GT/s	
		4174 HE	2.3						
		4170 HE	2.1						
	LOW POWER	32W	4164 EE	1.8	6	6 x 512K	6 MB	1333 MHz ²	6.4 GT/s ³
			4162 EE	1.7					

1 ACP stands for Average CPU Power.

2 Max memory speed for the low power (EE) processors on the Adelaide platform is 1066 MHz.

3 System bus speed for the low power (EE) processors on the Adelaide platform is 2GT/s (HT1).

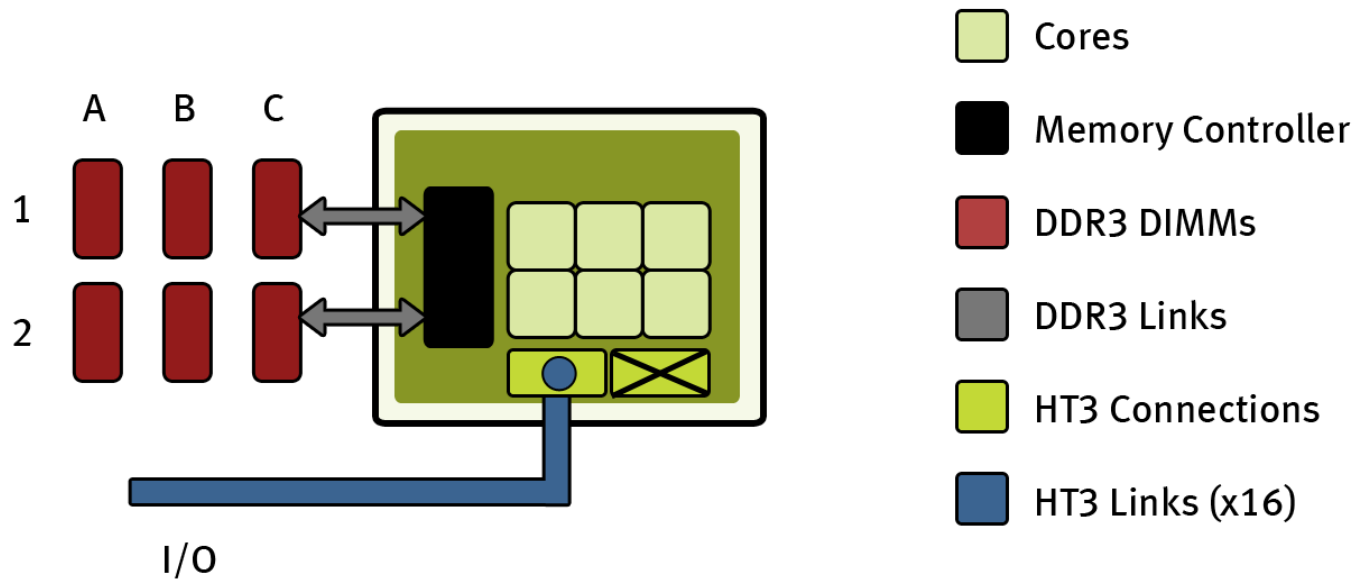
4 The standard power 4-core 2.6 and 2.2 Lisbon processors do not support LV memory or C1E. Please refer to technical documentation for additional details.

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Processor Block Diagram for 1P Mainboards



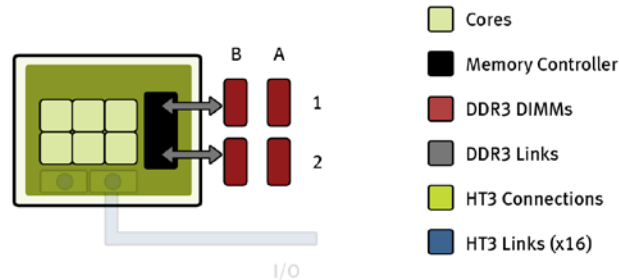
Note: Not all mainboards will support 3 DIMMs per channel.

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Memory Population Guidelines: 2 DIMMs per channel



Mainboards with 2 DIMMs per Channel¹

	DIMM Bank A	DIMM Bank B		Max MHz, 1.5V DIMMs	Max MHz, 1.35V DIMMs	Max GB / Channel
UDIMM	1R or 2R	Empty		1333 MHz	1333 MHz	4 GB
	1R	1R		1333 MHz	1333 MHz	4 GB
	2R	2R		1066 MHz	1066 MHz	8 GB
RDIMM	1R or 2R	Empty		1333 MHz	1333 MHz	8 GB
	1R	1R		1333 MHz	1333 MHz	8 GB
	2R	2R		1066 MHz	1066 MHz	16 GB
	4R	Empty		1333 MHz	1066 MHz	16 GB
	4R	4R		800 MHz	667 MHz	32 GB

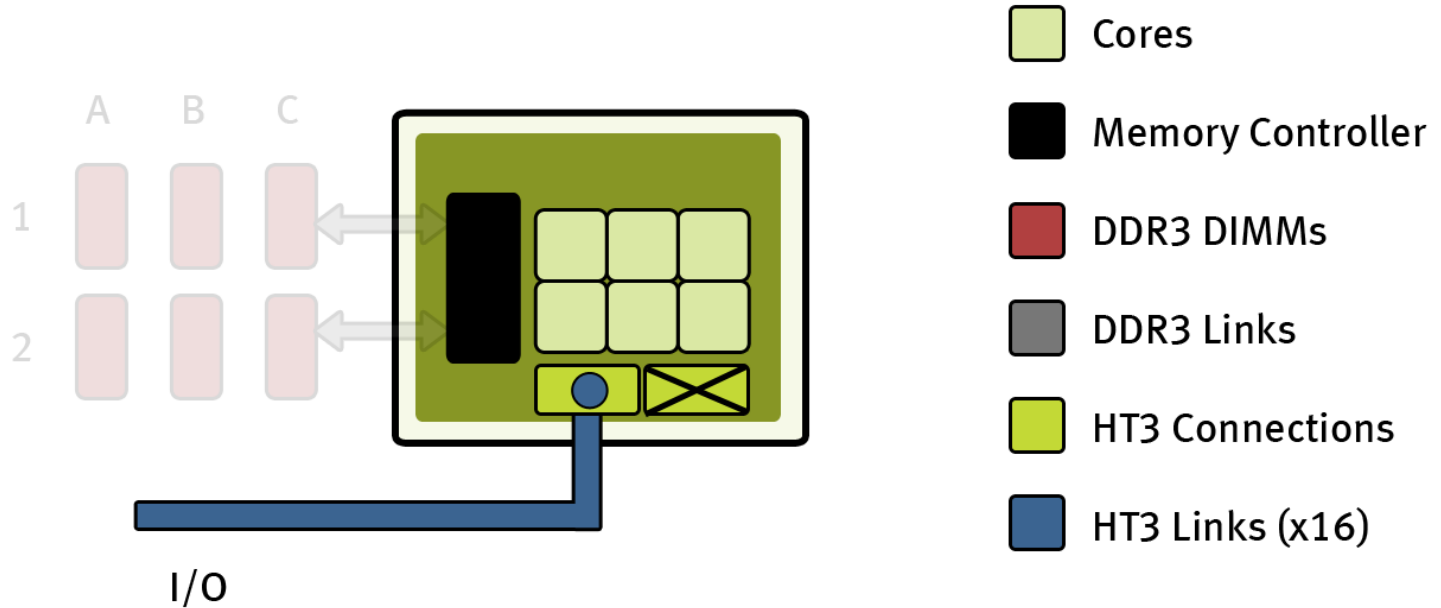
¹ AMD supports single, dual, and quad rank (1R, 2R, and 4R). There is no distinction between memory population scenarios for 1P and 2P servers.

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HT3 Connections for 1P Mainboards

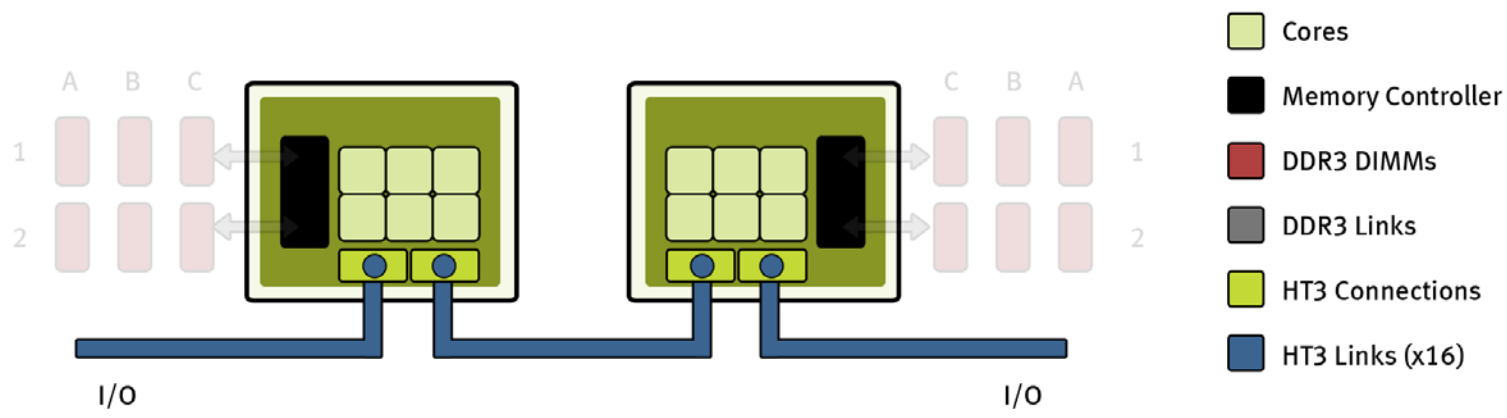


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HT3 Connections for 2P Mainboards



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Silicon Mechanics Servers featuring the AMD Opteron 4100

Rackmount Servers with the AMD Opteron 4100 Series

- Rackform nServ A109
- Rackform nServ A143

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Contact Silicon Mechanics

For answers regarding processor selection or other questions,
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