

## Sun UltraSPARC T2 Processor For the IBM BladeCenter



Themis' new T2BC Blade Server enables Solaris applications to run natively, on an UltraSPARC® T2® Chip Multi-Threading (CMT) processor, within an IBM® BladeCenter™. The T2BC Blade Server functions as an independent Sun® T2 server running the Solaris™ 10 operating system. The Blade Server can be managed by Sun's Integrated Lights Out Management (ILOM) tools. The T2BC Blade Server can share the same chassis with server blades that utilize other processor architectures and operating systems. The T2BC processor's eight cores each support eight threads, for a total of 64 "hot" threads per socket and an efficiency approaching sixteen parallel instructions per clock.

### Highlights

- UltraSPARC T2 server designed for use in the entire family of IBM BladeCenter chassis.
- Compatible with Sun Integrated Lights Out (ILOM) management.
- Runs UltraSPARC applications under Solaris 10.
- Eight processors cores with sixteen execution units run up to four threads per execution unit, with "zero-cycle" thread switching.

### T2BC Blade Server Specifications at a Glance

Processor	UltraSPARC T2 processor running at 1.2 GHz. The T2 processor has 8 cores. Each core has two execution units and each execution unit supports four threads. Each core also has an integrated floating point and cryptographic unit.
Number of Processors sockets per blade	One
Cache	Each core has an 8KByte 4-way set associative L1 instruction cache and a 16 Kilobyte, 8-way set associative L1 data cache. A 4 Megabyte, 16-way set associative L2 cache is shared by all cores.
Memory	Up to 32 GBytes Fully Buffered DDR II memory
Internal hard disk drives	One 2.5 inch SATA or SAS drive
Maximum internal storage	500 GBytes
Network Fabric	Two integrated Gigabit ports are standard. Two additional GigE, Fibre Channel or InfiniBand ports with optional daughtercards. Two 10 GigE ports with second optional daughtercard.
I/O upgrade	One PCI-X expansion connector (IBM specific)
Systems management hardware	Two integrated management processors. One for management in IBM environment and another for management in Sun environment.

## T2BC Blade Server Features and Benefits

Feature	Benefit
UltraSPARC T2 processor on a IBM BladeCenter compatible blade	<ul style="list-style-type: none"> <li>• Capability to run Solaris 8 and 9 UltraSPARC applications under Solaris 10 in a BladeCenter environment.</li> <li>• Smooth migration to BladeCenter architecture for UltraSPARC applications.</li> </ul>
Eight Cores in each UltraSPARC T2 processor	<ul style="list-style-type: none"> <li>• Eight processors cores with sixteen execution units run up to four threads per execution unit, with “zero-cycle” thread switching.</li> <li>• Each core contains a fully pipelined floating point unit.</li> <li>• Built-in cryptographic stream engine on each core.</li> </ul>
Up to 32 GB Fully Buffered DDR II memory	<ul style="list-style-type: none"> <li>• 8 DIMM slots per blade.</li> </ul>
Runs existing Solaris 10 applications unmodified and Solaris 8/9 applications using Sun’s Migration Assistant	<ul style="list-style-type: none"> <li>• Faster migration to the BladeCenter architecture.</li> <li>• No need to port existing Solaris 10 applications to a new architecture.</li> </ul>
Support for one internal 2.5 inch SATA or SAS hard disk drive	<ul style="list-style-type: none"> <li>• Non-hot swap SATA or SAS drive provides up to 500 GBytes of local storage.</li> </ul>
Integrated dual Gigabit and 10 Gigabit Ethernet controllers	<ul style="list-style-type: none"> <li>• Gigabit and 10 Gigabit provides fast network connections (10 Gigabit requires optional plug-in daughter card).</li> </ul>
Two high-availability midplane connections	<ul style="list-style-type: none"> <li>• Each T2 Blade Server is connected via two redundant paths to the passive midplane and integrated switching and power infrastructure contained in the BladeCenter chassis.</li> </ul>
Integrated System Management Processors	<ul style="list-style-type: none"> <li>• Enables management via Sun Integrated Lights Out Management (ILOM) management tools.</li> <li>• Management processors increase server availability by continuously monitoring the server to notify of potential system failures or changes.</li> </ul>
Sun Integrated Lights Out Management (ILOM) Management Tools	<ul style="list-style-type: none"> <li>• Enables management of T2 Blade Server via standard Sun tools.</li> <li>• Allows T2 Blade Server to be integrated into a network of Sun Servers.</li> </ul>
On-Board Graphics	<ul style="list-style-type: none"> <li>• Enables emulation of a Sun workstation.</li> </ul>
Operating System Support	<ul style="list-style-type: none"> <li>• Sun Solaris 10.</li> </ul>
Front Panel Serial Port	<ul style="list-style-type: none"> <li>• Extra communication channel.</li> </ul>
Front Panel USB 2.0 Port	<ul style="list-style-type: none"> <li>• Allows use of USB memory to load OS.</li> </ul>

### T2BC Blade Server Environmentals

Parameter	Operating	Non-Operating
Temperature	0-40 Deg C (55C for 96 hours)	-40 - 70 Deg C
Humidity (non-condensing)	10 – 95%	10 – 95%
Altitude	0 – 13,000 Feet	0 – 13,000 Feet
Shock	20G @ 20msec	20G @ 20msec
Vibration	0.25G rms 5 to 500 Hz	1G rms 5 to 500 Hz
Airflow	28 CFM @ 40C	-

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