

IdeaByte

## Why Pay More? IBM S80 Thumps Sun in Oracle 8i Implementation

March 17, 2000

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### Catalyst

A client inquiry

### Question

Why is the Oracle 8i Enterprise Edition a significantly more cost effective solution running on an IBM S80 vs. a Sun E6500 or an E10000?

### Answer

#### Some Retrospective

Less than one year ago, **IBM's** Bob Stephenson, the then senior executive running IBM's server group, stated that IBM was going to be "deadly serious about Unix." At that point, IBM's RS/6000 S80 had not yet been announced (it started shipping in September of 1999). However, it was clear at the time, that the RS/6000 part of the server group knew that they had a strong high-end server that would put IBM back on the short-list, especially since it related to high-end transaction processing and database management system (DBMS) environments. Based on a number of factors — processor improvements, AIX kernel threading optimizations, switched memory enhancements and improvements on cache hit rates — the S80 has scored the highest marks on just about every popular commercial benchmark (Notesbench, SPECweb96, VolanoMarks, Baan BRUs, to name a few).

But, the compelling aspect of this copper-based mid-frame server alternative weighed in after the audited **Oracle** tpm-C benchmarks were released. With the fully configured CPU count running only at a 24-way symmetric multiprocessing (SMP) configuration vs. a 64-way **Sun** E10000, the S80 still thumped Sun at a performance threshold of 135,816 tpm-C vs. the E10000 at 115,000 tpm-C. While this benchmark was not fully baked at the time of the announcement, Giga was bullish on the very well-balanced design of this enterprise server upon its announcement, creating an equal optimization in the balance between CPU, memory and I/O (see IdeaByte, [IBM's RS/6000 Reinvented: S80 Enterprise Server and AIX as Change Agents](#), Brad Day).

#### Sun and S80 Square Off — Oracle's Pricing the Issue

Recently, based on pending server deals, clients have called Giga to discuss how the Oracle price structure should be viewed in comparison of IBM's S80 vs. Sun's E10000. IBM clearly has thrown down the gauntlet vs. Sun's E10000 in their demonstration of significant cost advantages for prospects considering deployment of Oracle 8i Enterprise Edition.

Before addressing how Oracle's pricing strategy affects the outcome of the server comparison between IBM and Sun, let's first look at a basic performance comparison between the server solutions. Table 1 demonstrates the positioning of the S80 vs. the E6500 Cluster. While of equal performance range — both at approximately 135,000 tpm-Cs — Sun would have to configure four 24-way Sun 6500's (in a cluster

configuration) to equate the DBMS scalability of one S80:

**Table 1: Comparing IBM S80 vs. Sun E6500 Cluster**

Functional Description	S80	Sun E6500 Cluster
Performance (TPC-C)	135,816	135,461
CPU count	24	Four 24-way modules
Performance/CPU	5,659	1,411
Performance of 6 CPUs	33,954	8,466
Sample system prices	-6 CPUs	-16 CPUs
	-16GB memory	-16GB memory
	\$404,000	\$474,000

Source: Giga Information Group

In Table 1, the base hardware argument is straightforward: a single 24-way S80 can deliver four times the DBMS scalability performance of a four node, 24-way E6500 Cluster for 17 percent less money. The plot thickens further when that comparison is made specific to single system image performance, with the S80 delivering three times the performance of an E10000 at essentially 60 percent of the cost (see Table 2):

**Table 2: Comparing IBM S80 vs. Sun E10000**

Functional Description	S80	Sun E6500 Cluster
Performance (TPC-C)	135,816	115,395
CPU count	24	64
Performance/CPU	5,659	1,803
Performance of 6 CPUs	33,954	10,818
Sample system prices	Base includes: -6 CPUs -2GB memory	\$220,000 base: +\$17,000 x 6 CPUs +9,500 X -16GB memory +\$65,000 x 2 system boards +\$10,500 x 1 SSP
Total Price	\$290,000	\$481,500

Source: Giga Information Group

### Enter the Oracle Pricing Comparison — Is This for Real?

Oracle's pricing model is tailored to create a significant advantage for a server vendor that can achieve a higher level of performance scalability (tpm-C may be used as one kind of scalability metric) against the lowest processor count to achieve that performance threshold. Here's how it works. As revealed in Table 3, Oracle's license fees are now based on a unit of measurement called PowerUnits (PUs). Essentially, a PowerUnit is equal to 1MHz of processing power on a single processor. PUs for the server license are calculated by multiplying the total number of CPUs by the MHz of those CPUs. Table 3 shows the manner in which Oracle then comes up with their formula on establishing a minimum user number. Essentially, you take the Named User Model pricing model which states that for Oracle 8i Enterprise Edition, you need to purchase one user license for every 20 PowerUnits. Then, you would take the total PowerUnit associated with the specific server (for instance, with the S80, that number is 2,700) and after dividing 2,700 by 20, you'd come up with the minimum user count required for purchase. Based on this minimum user result, a Sun customer choosing Oracle would have to buy a higher minimum user license, and therein lies the final cost difference on the sum total (see Table 4).

**Table 3: Oracle Pricing Metrics — How They Work?**

Functional Description	S80 (6-way)	Sun E6500/E10000 (16-way)
PowerUnits (server)	6 x 450 (MHz) = 2,700	16 x 400 = 6400
Minimum user	2,700 / 20 = 135	6,400 / 20 = 320

Source: Giga Information Group

Referring to Table 3, the PowerUnit (user) of 135 (on the S80) vs. the 320 (on the E10000) has, in turn, created a large pricing differential across the two platforms. Table 4 demonstrates the entire pricing outcome, inclusive of hardware, software and maintenance. These prices were pulled from the Oracle Store ([www.oracle.com](http://www.oracle.com)) in February 2000. While these prices are subject to change, the significant advantages of the IBM S80 vs. Sun E6500 and/or E10000 running Oracle 8i, beyond hardware price and associated maintenance (which in itself is a sizeable delta), shows up in all the software license and Oracle maintenance fees.

**Table 4: Oracle Cost Comparison**

	IBM S80-6way	Sun E6500 -16way	Sun E10000 - 16way
Hardware and maintenance	\$ 536,840	\$ 684,720	\$1,286,632
Oracle database	\$ 243,000	\$ 576,000	\$ 576,000
Oracle financials	\$ 539,325	\$1,278,400	\$1,278,400
Oracle maintenance	\$ 207,750	\$ 492,448	\$ 492,448
Oracle discount	(\$234,697)	(\$704,054)	(\$704,054)
Total	\$1,292,218	\$2,327,514	\$2,929,426

Source: Giga Information Group

#### Recommendations

In Unix/Oracle deployments, the S80 will offer a sound financial incentive — a significant cost savings vs. Sun's E6500, or E10000 (refer to Table 4):

- When comparing hardware and hardware maintenance fees for models that have equivalent performance headroom
- When comparing either Oracle DB or Oracle financial license fees across platforms
- When comparing Oracle maintenance fees across platforms

If you prefer to stay with Sun (with the assumption that Sun is your current installed vendor), the IBM S80 achievements serve both as an architectural advantage specific to performance scalability, as well as overall cost advantages. Consequently, using the S80 to negotiate a better deal with Sun could be an alternate strategy.

While these price differences, specific to Oracle deployment, show a significant advantage for IBM's S80, it is the additional architectural advantages of achieving the higher performance scalability on a much lower processor count that should also warrant attention.

Take caution, however, that these pricing comparisons reflect prices that were calculated at a point in time, and will continuously change. Nevertheless, this points out the importance of running similar comparisons before purchase. By the time you read this research, Sun will already have been camping on Oracle's doorstep trying to negotiate its way around the current Oracle pricing methodology.

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