

Oracle Price Comparison --

***IBM High-end UNIX[®] Servers
Versus Sun E10000 and
HP Superdome***

April 7, 2001

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The purpose of this document is to give you an understanding on how Oracle prices its databases and application programs - and to demonstrate the dramatic cost impact this has on less powerful systems like Sun's E10000 and Hewlett-Packard's Superdome. Although the paper looks only at Oracle software, other ISV software may also be priced based on the number of processors.

This type of pricing strategy favors systems like the IBM @server pSeries 680 and IBM RS/6000® Model S80 which are capable of more work per processor based on TPC-C™ results than systems from competitors like Sun and HP.

From the table below it is easy to see that the pSeries 680 with 24 processors easily out performs a 48-way HP Superdome and a 64-way Sun E10000 using the best available results published for each system.

TPC-C (single system)	pSeries 680	HP Superdome	Sun E10000
tpmC	220,807.27	197,024.17	156,873.03
\$/tpmC (US)	\$35.73	\$43.25	\$48.81
Number of processors	24	48	64
MHz per processor	600	552	400
Database	Oracle 8i EE v8.1.7	Oracle 8i EE v8.1.7.1	Sybase ASE 2.0.0.2
System availability date	04/13/01	05/02/01	02/28/01
Benchmark results date	10/16/00	01/02/01	08/29/00

It is interesting to note that when Sun ran the same TPC-C benchmark using Oracle 8i, they had a much lower performance and higher cost per transaction than shown in the table above. See the table below for the comparison of a 24-way RS/6000 S80 versus a 64-way Sun E10000 running Oracle 8i.

TPC-C (single system)	RS/6000 S80	Sun E10000
tpmC	135,815.70	115,395.73
\$/tpmC (US)	\$52.04	\$105.63
Number of processors	24	64
MHz per processor	450	400
Database	Oracle 8i EE v8.1.6	Oracle 8i EE v8.1.5.1
System availability date	03/01/00	05/02/01
Benchmark results date	10/29/99	03/24/99

Certainly one of the contributing cost factors was the difference in the database prices. The total 5 year cost including maintenance of Sybase reported in Sun's TPC-C disclosure was \$542,400 compared to \$2,788,390 when they ran the benchmark with an older version of Oracle 8i. Clearly the choice of the database can influence the total cost as well as price/performance.

The above TPC-C benchmarks were all run at different times, so a direct comparison of Oracle prices cannot be made without updating the prices. The following methodology is based solely on information obtained from Oracle's Web site as of April 7, 2001.

Oracle prices their software based on several factors:

- The number of systems
- The type of processor/system architecture
 - Intel or Intel compatible (multiplier of 1)
 - RISC (multiplier of 1.5)
 - Mainframe (multiplier of 24)
- Number of processors
- MHz per processor

The multiplication of these factors results in the Universal Power Unit (UPU). Oracle states their prices in dollars per UPU or dollars per minimum user. The minimum number of users per single system is calculated by dividing UPU by 30 with normal rounding. The UPU and minimum user values for S80, p680, E10000 and Superdome are:

	# of systems	Arch. factor	# of processors	MHz/processor	UPU	Minimum users
S80	1	1.5	24	450	16,200	540
pSeries 680	1	1.5	24	600	21,600	720
HP Superdome	1	1.5	48	552	39,744	1,325
Sun E10000	1	1.5	64	400	38,400	1,280

Oracle has a calculator on their Web site that will compute the number of UPU's or minimum users, if you prefer.

To calculate the price of the software, all you have to do is select the type of license you want. The choices are:

- Perpetual
- 4 year, which is 60% of Perpetual (with normal rounding)
- 2 year, which is 35% of Perpetual (with normal rounding)

For purposes of this comparison, we will use the Perpetual license charges. Because the fee is a constant, the percent difference in list price will remain the same regardless of which license type you choose. This comparison includes the license charge, subscription service, product support and discount.

The cost of Oracle 8i Enterprise Edition as of April 7, 2001 for the above configurations is:

	# of Processors	UPU	Price/UPU	License Charge	Subscription And Support	Discount	Net price
S80	24	16,200	\$100	\$1,620,000	\$356,400	\$592,920	\$1,383,480
pSeries 680	24	21,600	\$100	\$2,160,000	\$375,200	\$790,560	\$1,844,640
HP Superdome	48	39,744	\$100	\$3,974,400	\$874,368	\$1,454,630	\$3,394,138
Sun E10000	64	38,400	\$100	\$3,840,000	\$844,800	\$1,405,440	\$3,279,360

Both the p680 and S80 have a tremendous price advantage over the HP Superdome and Sun E10000, but this is just the tip of the iceberg. Based on raw performance, the p680 is 41.5% faster than the 64-way Sun E10000 and 12% more powerful than the 48-way HP Superdome. This means you actually need even fewer processors to match the performance of the Sun and HP; thus, you could have even greater savings.

For example, if we make the assumption that there is 1-to-1 scaling in performance as we add processors to the p680 (this means there is no degradation in performance). It would take approximately 17 p680 processors to meet or exceed the performance of the 64-way Sun E10000. Because the processors for p680 come in increments of 6, the price comparison should be between an 18-way p680 and a 64-way Sun E10000.

	# of Processors	UPU	Price/UPU	License Charge	Subscription And Support	Discount	Net price
PSeries 680	18	16,200	\$100	\$1,620,000	\$356,400	\$592,920	\$1,383,480
Sun E10000	64	38,400	\$100	\$3,840,000	\$844,800	\$1,405,440	\$3,279,360

Based on the above example, the Oracle 8i Enterprise Edition database software including subscription service and product support is over 57% less expensive on the pSeries 680 than it is on the Sun E10000.

Oracle typically prices their application software based on minimum users. They recommend that you consult with them for the number of minimum users for ERP and CRM applications. If the same type of performance ratios apply to Oracle applications as it does for databases, then you could experience similar types of savings because the price is a constant. Please use Oracle's Web-based store to calculate the price of application software. Just follow the steps above to determine application prices.

Conclusion:

Many factors go into determining the overall cost of ownership. The cost of middleware and applications can be a significant item. Systems like the IBM @server pSeries 680 and IBM RS/6000 Model S80 can provide a significant cost savings -- in some cases exceeding 50% over the E10000.

There are other factors like IBM's 24x7 one year warranty, low cost financing options, efficient power consumption and aggressively priced systems that further improve the overall cost of ownership.

IBM's UNIX systems deliver extraordinary value compared to Sun and HP.

Notes:

All performance results were obtained from www.tpc.org as of April 7, 2001. All information about Oracle's products, pricing methodology and prices are from Oracle's Web site www.oracle.com as of April 7, 2001.

Once you access Oracle's Web site, select store at the top of the page. Choose the database you want. Notice that if you already know the number of UPUs you can enter that value below the database and it will calculate the license charges. Otherwise select the learn more link. This will take you to a page that explains the licensing and has a link to the UPU calculator. Once you calculate the license charges pick the service and support option at the bottom of the page.

Please note prices and benchmark results are subject to change. Please check the above Web sites for the latest available information.

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Sever Group
Route 100
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04-01
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