 ARBOR® SOFTWARE	Arbor Essbase OLAP Server 5 with Hewlett Packard NetServer LX Pro 6/200 SMP Audited Results	OLAP Council APB-1 OLAP Benchmark
		Report Date: March 11, 1998

APB-1 Benchmark Metrics

AQT Analytical Query Time	AQM Analytical Queries per Minute
0.0113 seconds	5293 queries per minute

Measured Results

Bulk Load and OLAP Calculation	Incremental Load and OLAP Calculation	Query Execution
0:02:00	0:10:44	0:36:30


Total Time for AQT and AQM (Incremental load and calculation + query execution)	Total Time Including Bulk Load and Calculation
0:47:14	0:49:14

Operating Environment

Query Streams	Number of Queries	OLAP Server	Operating System
100	250,000	Arbor Essbase OLAP Server 5 Version 5.0	Microsoft Windows NT Version 4.0

Hardware Components

System	HP NetServer LX Pro 6/200 SMP with 1 GB RAM
Processors	4 200 MHz Intel Pentium® Pro Processors with 512 Kb Cache
Storage	1 4.2 GB Ultra-SCSI disk drive
Network	10 baseT Ethernet network
Clients	4 Windows NT workstations (25 simulated users per workstation)

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Additional Metrics and Statistics

Dimensions and Members as Audited

6 dimensions:

Time:	86 Time periods	Product:	10,000 Products
Scenario:	16 Scenarios	Customer:	1,000 Customers
Measures :	15 Measures	Channel:	10 Channels

Settings Used for OLAP Council APB-1 Benchmark Generator

Data Density	Number of Channels	Number of Users
0.1 %	10	100

Additional Measurements

Total index size	27 Megabytes
Total database size	303 Megabytes
Total index size as % of total data size	9 %
Pre-compression size of data blocks	165120 bytes
Post-compression size of data blocks	3072 bytes
Compression ratio achieved	98.1 %

OLAP server runtime statistics

Size of index cache	34 Megabytes
Index cache hit ratio	100 %
Size of data cache	100 Megabytes
Data cache hit ratio	77 %

Network Utilization Statistics

10 baseT network utilization during query phase	19.6 %
10 baseT network bytes per second during query phase	240,000 bytes / second



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Server Hardware Cost and Description

Product	Part Number	Unit Price	Vendor	Qty	Extended Price
HP NetServer LX Pro 6/200 SMP M1 Array 3 year, on-site, next day warranty 2 200MHz Pentium Pro processors and 128 MB memory 12 Hot swap disk bays HP NetRaid Disk Array Controller - 3 channel Ultra SCSI Integrated dual PCI Ultra SCSI controllers & IDE controller Integrated 1024x768 16 color video 512KB video memory CD-ROM drive, 3.5-inch, 1.44MB floppy drive 1 parallel, 2 serial ports, keyboard and mouse 3 410W hot-swap power modules & redundant fans HP NetServer Navigator, HP NetServer Assistant HP OpenView for Windows	D4315B	15,500	1	1	15,500
NetServer LX 6/200 Dual Processor Card	D4866A	907	1	1	907
NetServer LX 6/200MHz Pentium Pro Processor	D4867A	1,707	1	2	3,414
128MB 60ns SIMM Memory Module Upgrade	H4893	555	2	7	3,885
Fast Etherlink XL PCI 10/100	3C905	98	3	1	98
HP 4.2 GB Ultra SCSI Disk	D3583C	799	1	1	799
Viewsonic 14" 1024X768 Monitor		199	1	1	199
Total Hardware Cost					24,802

Pricing is from MicroAge InfoSystems Services.

Note: 6 additional D3583C HP 4.2 GB Ultra SCSI disk Drives were physically installed inside the server but were not used in any way during the benchmark.

10BaseT Ethernet Network:

3Com SuperStack II Switch1000 24 port 10BaseT Switch 3C16900A

Client Computers (4):

Compaq Professional Workstation 5000 Model 269120-006

200MHz Pentium Pro Processor with 64 MB EDO memory

4.3 GB Fast-Wide SCSI-2 Hard Drive (DFHSS4W) (C: Drive)

4.3 GB Wide-Ultra SCSI Hard Drive (ST34371W) (E: Drive)

Prices reflect actual prices a customer would pay for a one-time purchase of the stated components, including standard discounts. Individually negotiated discounts are not included.

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