
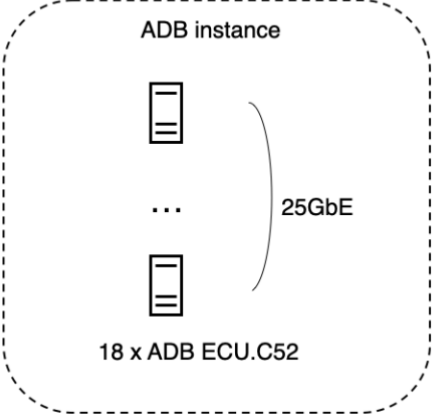
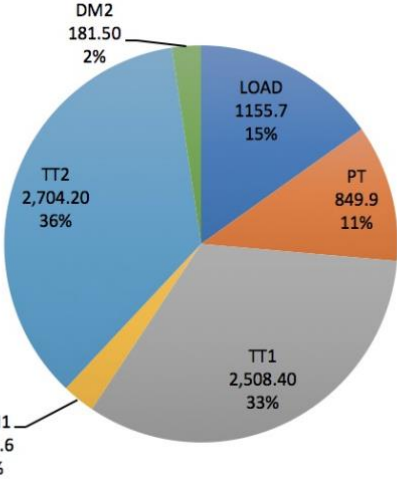
 Alibaba Cloud	Alibaba Cloud AnalyticDB		TPC-DS: 2.11.0 TPC-Pricing: 2.5.0 Report Date: June 14, 2020	
Total System Cost	TPC-DS Throughput	Price/Performance	System Availability Date	
¥1,126,006.68 RMB	18,998,559 QphDS@10000GB	¥0.06 RMB/QphDS@10000GB	As of Publication	
Dataset Size ¹	Database Manager	Operation System	Other Software	Cluster
10,000 GB	Alibaba Cloud AnalyticDB 3.0.12	Alibaba Group Enterprise Linux Server 7.2 (Paladin)	N/A	Yes
  Benchmarked Configuration		 Elapsed Time		
Load includes backup = No		RAID = No		
System Configuration:		Alibaba Cloud AnalyticDB Cluster		
Servers:		18 x ECU C52		
Total Processors/Cores/Threads:		936 virtual cores (threads)		
Total Memory:		6,912 GB		
Total Storage:		144,000 GB		
Storage Ratio:		14.4		
Server Configuration:		Per node (ECU C52)		
Processors/Cores/Threads:		52 virtual cores (threads)		
Memory:		384 GB		
Network:		25Gbps		
Storage Device:		8,000 GB SSD (4 x 2,000 GB NVMe)		
<p>1. Dataset Size includes only raw data (i.e., no temp, index, redundant storage space, etc.).</p> <p>2. Total Storage = 8,000 * 18 (ECU SSD) = 144,000 GB</p> <p>3. Storage Ratio = Total Storage / SF = 144,000 GB / 10,000 GB</p>				

Alibaba Cloud		Alibaba Cloud AnalyticDB			TPC-DS: 2.11.0 TPC-Pricing: 2.5.0 Report Date: June 14, 2020		
Description	Part Number	Src	Unit Price (RMB)	Qty	Ext. Price (RMB)	3-Year Maint. (RMB)	
Licence Compute and Software Services							
<u>AnalyticDB 3.0 Cluster (3-Year Pre-Pay)</u>	(Est China 2)	1	1,122,709.68	1	1,122,709.68	included	
- C52 Node Group (3 ECU nodes per group)			included	6			
- 8,000GB Storage (per ECU node)			included	18			
- Private Network			included	1			
Licence Computer and Software Services Sub-Total					1,122,709.68	0.00	
Other Components							
Lenovo MIIX 210 Laptop (Includes spares)		2	1,099.00	3	3,297.00		
Other Components Sub-Total					3,297.00	0.00	
1 = Alibaba Cloud, 2 = Tmall.com				3-Year Cost of Ownership		1,126,006.68	
				QphDS@10000GB		18,998,559	
Audited by Francois Raab, InfoSizing				RMB/QphDS@10000GB		0.06	
<p>Prices used in TPC benchmarks reflect the actual prices a customer would pay for a one-time purchase of the stated components. Individually negotiated discounts are not permitted. Special prices based on assumptions about past or future purchases are not permitted. All discounts reflect standard pricing policies for the listed components. For complete details, see the pricing sections of the TPC benchmark specifications. If you find that the stated prices are not available according to these terms, please inform at pricing@tpc.org. Thank you.</p>							

Alibaba Cloud		Alibaba Cloud AnalyticDB		TPC-DS: 2.11.0 TPC-Pricing: 2.5.0 Report Date: June 14, 2020	
Metrics Details:					
Name	Value	Unit			
Scale Factor (SF)	10,000	GB			
Streams	4	Stream			
Queries (Q)	396	Queries			
T_load	1,155.7	Second			
T_ld	0.0129	Hour			
T_power	849.9	Second			
T_pt	0.9444	Hour			
T_tt1	2,508.5	Second			
T_tt2	2,704.3	Second			
T_dm1	203.6	Second			
T_dm2	181.5	Second			
T_tt	1.4480	Hour			
T_dm	0.1070	Hour			
Load Step	Start	End	(sec.)	(hh:mm:ss)	
Build	06/14/20 20:32:43.98	06/14/20 20:51:59.68	1,155.70	0:19:16	
Audit	06/14/20 20:51:59.68	06/14/20 21:18:38.49	1,598.81	0:26:39	
Finish	06/14/20 21:18:38.49	06/14/20 21:18:38.49	0.00	0:00:00	
Reported	06/14/20 20:32:43.98	06/14/20 21:18:38.49	1,155.70	0:19:16	
Test	Start	End	(sec.)	(hh:mm:ss)	
Power	06/14/20 21:30:19.94	06/14/20 21:44:29.83	849.89	0:14:10	
Thruput-1	06/14/20 21:44:29.83	06/14/20 22:26:18.24	2,508.41	0:41:48	
DM-1	06/14/20 22:26:18.25	06/14/20 22:29:41.85	203.60	0:03:24	
Thruput-2	06/14/20 22:29:41.86	06/14/20 23:14:46.07	2,704.21	0:45:04	
DM-2	06/14/20 23:14:46.07	06/14/20 23:17:47.52	181.45	0:03:01	
Stream	Start	End	(sec.)	(hh:mm:ss)	
Pt - 0	06/14/20 21:30:19.94	06/14/20 21:44:29.83	849.89	0:14:10	
Tt1 - 1	06/14/20 21:44:29.83	06/14/20 22:25:33.32	2,463.49	0:41:03	
Tt1 - 2	06/14/20 21:44:29.83	06/14/20 22:24:47.74	2,417.91	0:40:18	
Tt1 - 3	06/14/20 21:44:29.83	06/14/20 22:25:41.91	2,472.08	0:41:12	
Tt1 - 4	06/14/20 21:44:29.83	06/14/20 22:26:18.24	2,508.41	0:41:48	
Tt2 - 5	06/14/20 22:29:41.86	06/14/20 23:14:46.07	2,704.21	0:45:04	
Tt2 - 6	06/14/20 22:29:41.86	06/14/20 23:14:45.68	2,703.82	0:45:04	
Tt2 - 7	06/14/20 22:29:41.86	06/14/20 23:13:53.42	2,651.56	0:44:12	
Tt2 - 8	06/14/20 22:29:41.86	06/14/20 23:14:37.68	2,695.82	0:44:56	
DMt1 - 1	06/14/20 22:26:18.25	06/14/20 22:28:13.10	114.85	0:01:55	
DMt1 - 2	06/14/20 22:28:13.09	06/14/20 22:29:41.85	88.76	0:01:29	
DMt2 - 3	06/14/20 23:14:46.07	06/14/20 23:16:14.10	88.03	0:01:28	
DMt2 - 4	06/14/20 23:16:14.10	06/14/20 23:17:47.52	93.42	0:01:33	

Timing Intervals for Refresh Functions (in Seconds)									
DM Fx	R-Run 1	R-Run 2	R-Run 3	R-Run 4	Min	25%tile	Median	75%tile	Max
DF_CS	42.2	26.3	27.5	28.0	26.3	27.2	27.7	31.5	42.2
DF_I	6.2	3.1	2.6	3.4	2.6	3.0	3.2	4.1	6.2
DF_SS	57.7	42.3	41.2	44.9	41.2	42.0	43.6	48.1	57.7
DF_WS	33.7	16.5	16.1	18.3	16.1	16.4	17.4	22.1	33.7
LF_CR	9.8	7.3	7.7	8.0	7.3	7.6	7.9	8.5	9.8
LF_CS	46.8	39.1	38.5	39.9	38.5	39.0	39.5	41.6	46.8
LF_I	11.6	7.5	7.7	8.1	7.5	7.7	7.9	8.9	11.6
LF_SR	9.4	7.5	7.4	8.0	7.4	7.5	7.8	8.4	9.4
LF_SS	47.7	38.9	39.4	40.5	38.9	39.2	39.9	42.3	47.7
LF_WR	9.8	5.5	4.3	5.0	4.3	4.8	5.3	6.6	9.8
LF_WS	34.2	12.4	12.5	12.4	12.4	12.4	12.4	17.9	34.2