



H3C UniServer R4900 G3

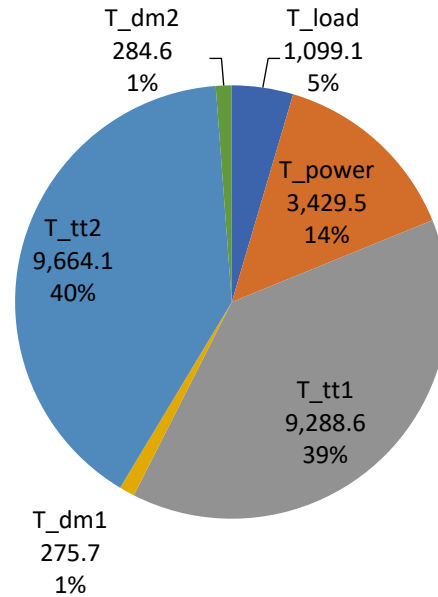
TPC-DS: 2.13.0
 TPC-Pricing: 2.6.0
 Report Date: 23-Dec-2020

Total System Cost	TPC-DS Throughput	Price / Performance	System Available Date	
¥3,784,642 RMB	8,944,478 QphDS@10000GB	¥0.43 RMB	23-Dec-2020	
Dataset Size	Database Manager	Operating System	Other Software	Cluster
10,000 GB	GBase 8a V9	Red Hat Enterprise Linux Server Release 7.8	No	Yes

8 x H3C UniServer R4900 G3, each with:
 2 x Intel Xeon Gold 6230R Processor
 512 GB DDR4 DRAM
 1 x 480GB Sata SSD Drive
 6 x 2TB NVMe Drive
 1x Intel E810-XXV 25Gb NIC



Benchmarked Configuration



Elapsed Time

Load includes backup = No	RAID = RAID-10
System Configuration	H3C UniServer R4900 G3
Servers:	8 x H3C UniServer R4900 G3
Total Processors/Cores/Threads:	16/416/832
Total Memory:	4,096 GB
Total Storage:	102,144GB
Storage Ratio:	10.22
Connectivity:	1 x Cisco Nexus 3232C Switch
Server Configuration:	Per node
Processors:	2 x Intel Xeon Gold 6230R Processor
Memory:	512 GB
Network:	1x Intel E810-XXV 25Gb NIC
Storage Device:	6 x 2TB NVMe Drive (data disks)



The Leader in Digital Solutions

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Description	Src	Part Number	Unit Price (RMB)	Qty	Extended Price (RMB)	3 Year Maint. Price
Hardware Components						
H3C UniServer R4900 G3 8SFF CTO Server	1	0235A2CR	9,800	8	76,800	
H3C UniServer R4900 G3 6230R(2.1GHz/26Cores/35.75MB/150W)CPU Module(CMCTO)	1	0231AEEC	36,300	16	580,800	
32GB 2Rx4 DDR4-2933P-R Memory Module(FIO)	1	0231ABDU	3,100	128	396,800	
8SFF HDD Cage Module BAY2(FIO)	1	0231A8QF	800	8	4,800	
8SFF NVMe HDD Cage Module BAY3(FIO)	1	0231A8QE	800	8	6,400	
2TB PCIe*Gen3 X4 NVMe U.2 2.5in RI P4510 SSD General Intelligent Disk Equipment Module(FIO)	1	0231A7P4	10,355	48	497,040	
480GB 6G SATA 2.5in MU S4810 SSD Generic Module-i(FIO)	1	0231AARN	3,380	8	27,040	
FHHL Riser(Slot1/2)(1X16 FHHL and 1X8 FHHL)(FIO)	1	0231A8QR	263	16	4,208	
8 Ports NVMe SSD Expander Module(Supporting 8 NVMe SSD Hard Disks)(FIO)	1	0231A8U5	2,900	8	23,200	
800W AC & 240V HVDC Power Supply(FP-R1-Platinum)(CMCTO)	1	0231A8L0	1,800	16	28,800	
SAS HD Transit Cable,0.71m,SAS HD 72pinS,SAS Cable,2*(SAS HD 36pinA)	1	0404A0U3	170	8	1,360	
OCulink Transit Cable,0.67m,4*(OCulink 42pinS),SAS Cable,4*(OCulink 42pinS)	1	0404A0SX	820	16	13,120	
2U Standard Fan Module(FIO)	1	0231A6QM	100	8	800	
H3C Server Installation and Startup Service	1	8814A0CP	2,118	8	16,944	
3Y 7x24 Remote Technical Support -OS	1	8813A4NA	4,140	8		33,120
H3C RHEL Svr 2Sckt/2Gst 3yr 24x7 LTU	1	3132A05G	43,050	8	344,400	
25G SFP28 Optical Transceiver Module (850nm,100m,SR,MM,LC)	1	0231A7QP	3,100	8	24,800	
Fiber Connector, MTPY (8 core)/PC,4DLC/PC(2.0m),Multimode(OM3),3.0mm,10.0m	1	1413A00H	370	2	740	
QSFP28 100G Optical Transceiver Module(850nm,100m OM4,SR4,MPO)(ODM-T)	1	3407A001	15,000	2	30,000	
CISCO N3K-C3232C 32 ports switch (incl. spares)	4	N3K-C3232C	69,000	3	207,000	
Intel Ethernet Network Adapter E810XXVDA2BLK (incl. spares)	5		2,370	10	23,700	
PDU	3		141	2	282	
Cabinet	3		1,700	1	1,700	
LG 22MK400H 21.5" Monitor	3		699	1	699	
Keyboard & Mouse	3		89	1	89	
Sub Total					2,311,522	33,120
Software Componets						
GBase 8a MPP V8 With 1 years 24x7 support	2	GBase 8a MPP	187,500	8	1,500,000	
2 years 24x7 support	2	GBase 8a MPP	240,000	1		240,000
Sub Total					1,500,000	240,000
Total Extended Price					3,811,522	273,120
Total Discounts					300,000	0
Grand Total					3,511,522	273,120
Price Key: 1: H3C, 2: GBase, 3: jd.com, 4: Qizhen Electronic, 5: Digital China Group Audited by Francois Raab of InfoSizing (www.sizing.com)						
Discount is based on 20% of extended price for GBase licence. Discounts for similarly sized configurations will be similar to those quoted here, but may vary based on the components in the configuration.						
					3 year cost of ownership USD:	3,784,642
					QphDS@10000GB	8,944,478
					RMB/QphDS@10000GB	0.43

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.

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Metrics Details:

Name	Value	Unit
Scale Factor (SF)	10,000	GB
Streams	4	Stream
Queries (Q)	396	Queries
T_load	1,099.1	Second
T_ld	0.0123	Hour
T_power	3,429.5	Second
T_pt	3.8106	Hour
T_tt1	9,288.6	Second
T_tt2	9,664.1	Second
T_dm1	275.7	Second
T_dm2	284.6	Second
T_tt	5.2647	Hour
T_dm	0.1557	Hour

Load Step	Start	End	(sec.)	(hh:mm:ss)
Build	12/14/20 22:41:40.88	12/14/20 22:59:59.93	1,099.05	0:18:19
Audit	12/14/20 22:59:59.93	12/14/20 23:18:07.49	1,087.56	0:18:08
Finish	12/14/20 23:18:07.49	12/14/20 23:18:07.49	0.00	0:00:00
Reported	12/14/20 22:41:40.88	12/14/20 23:18:07.49	1,099.05	0:18:19

Test	Start	End	(sec.)	(hh:mm:ss)
Power	12/14/20 23:27:39.49	12/15/20 00:24:48.91	3,429.42	0:57:09
Thruput-1	12/15/20 00:24:48.93	12/15/20 02:59:37.53	9,288.60	2:34:49
DM-1	12/15/20 02:59:37.55	12/15/20 03:04:13.25	275.70	0:04:36
Thruput-2	12/15/20 03:04:13.27	12/15/20 05:45:17.36	9,664.09	2:41:04
DM-2	12/15/20 05:45:17.38	12/15/20 05:50:01.94	284.56	0:04:45

Stream	Start	End	(sec.)	(hh:mm:ss)
Pt - 0	12/14/20 23:27:39.49	12/15/20 00:24:48.91	3,429.42	0:57:09
Tt1 - 1	12/15/20 00:24:48.93	12/15/20 02:57:06.73	9,137.80	2:32:18
Tt1 - 2	12/15/20 00:24:48.93	12/15/20 02:59:37.53	9,288.60	2:34:49
Tt1 - 3	12/15/20 00:24:48.93	12/15/20 02:58:30.93	9,222.00	2:33:42
Tt1 - 4	12/15/20 00:24:48.93	12/15/20 02:59:25.60	9,276.67	2:34:37
Tt2 - 5	12/15/20 03:04:13.27	12/15/20 05:43:44.01	9,570.74	2:39:31
Tt2 - 6	12/15/20 03:04:13.27	12/15/20 05:44:25.93	9,612.66	2:40:13
Tt2 - 7	12/15/20 03:04:13.27	12/15/20 05:45:00.69	9,647.42	2:40:47
Tt2 - 8	12/15/20 03:04:13.27	12/15/20 05:45:17.36	9,664.09	2:41:04
DMt1 - 1	12/15/20 02:59:37.55	12/15/20 03:01:55.16	137.61	0:02:18
DMt1 - 2	12/15/20 03:01:55.16	12/15/20 03:04:13.25	138.09	0:02:18
DMt2 - 3	12/15/20 05:45:17.38	12/15/20 05:47:41.54	144.16	0:02:24
DMt2 - 4	12/15/20 05:47:41.53	12/15/20 05:50:01.94	140.41	0:02:20

Timing Intervals for Queries (in Seconds)

Query	S 0	S 1	S 2	S 3	S 4	Min	25%tile	Median	75%tile	Max	S 5	S 6	S 7	S 8	Min	25%tile	Median	75%tile	Max
1	10.5	75.4	22.8	35.1	33.8	22.8	31.1	34.5	45.2	75.4	45.7	33.3	32.9	48.1	32.9	33.2	39.5	46.3	48.1
2	65.1	138.0	182.7	126.9	189.1	126.9	135.2	160.4	184.3	189.1	166.3	203.4	134.5	102.3	102.3	126.5	150.4	175.6	203.4
3	9.4	20.4	31.2	52.3	39.8	20.4	28.5	35.5	42.9	52.3	22.6	23.4	24.7	13.9	13.9	20.4	23.0	23.7	24.7
4	76.0	264.8	242.5	162.4	258.8	162.4	222.5	250.7	260.3	264.8	341.1	277.6	320.3	240.9	240.9	268.4	299.0	325.5	341.1
5	2.0	13.6	14.5	11.3	7.9	7.9	10.5	12.5	13.8	14.5	21.5	13.1	16.0	10.8	10.8	12.5	14.6	17.4	21.5
6	12.0	45.9	52.5	35.7	30.6	30.6	34.4	40.8	47.6	52.5	22.0	42.4	27.8	27.2	22.0	25.9	27.5	31.5	42.4
7	28.9	55.2	54.4	83.1	53.9	53.9	54.3	54.8	62.2	83.1	59.8	51.3	67.6	58.3	51.3	56.6	59.1	61.8	67.6
8	31.5	100.8	99.8	87.3	63.0	63.0	81.2	93.6	100.1	100.8	72.0	103.5	80.8	98.2	72.0	78.6	89.5	99.5	103.5
9	47.1	100.7	87.7	92.5	79.3	79.3	85.6	90.1	94.6	100.7	116.8	94.7	110.5	103.6	94.7	101.4	107.1	112.1	116.8
10	53.0	135.2	87.8	117.2	157.7	87.8	109.9	126.2	140.8	157.7	176.2	301.4	132.1	293.7	132.1	165.2	235.0	295.6	301.4
11	28.9	107.2	70.7	99.3	108.3	70.7	92.2	103.3	107.5	108.3	142.1	138.3	123.1	163.2	123.1	134.5	140.2	147.4	163.2
12	3.8	24.3	21.4	17.2	11.9	11.9	15.9	19.3	22.1	24.3	8.1	18.2	16.7	18.9	8.1	14.6	17.5	18.4	18.9
13	10.3	39.5	50.5	44.0	24.5	24.5	35.8	41.8	45.6	50.5	117.9	104.1	61.2	69.5	61.2	67.4	86.8	107.6	117.9
14	120.6	270.5	248.0	267.7	295.0	248.0	262.8	269.1	276.6	295.0	218.7	289.3	310.9	271.1	218.7	258.0	280.2	294.7	310.9
15	17.7	77.4	36.6	97.0	66.9	36.6	59.3	72.2	82.3	97.0	40.4	93.9	53.0	42.0	40.4	41.6	47.5	63.2	93.9
16	61.4	140.4	150.8	153.1	169.4	140.4	148.2	152.0	157.2	169.4	168.6	138.4	122.6	88.0	88.0	114.0	130.5	146.0	168.6
17	20.4	47.9	39.3	73.8	44.3	39.3	43.1	46.1	54.4	73.8	40.9	54.3	45.8	47.4	40.9	44.6	46.6	49.1	54.3
18	16.2	70.6	111.5	100.0	160.1	70.6	92.7	105.8	123.7	160.1	80.7	64.0	81.3	120.4	64.0	76.5	81.0	91.1	120.4
19	12.2	52.7	36.2	36.7	32.5	32.5	35.3	36.5	40.7	52.7	34.7	31.2	25.0	31.5	25.0	29.7	31.4	32.3	34.7
20	1.3	4.2	10.3	6.6	7.7	4.2	6.0	7.2	8.4	10.3	12.5	3.6	8.4	6.8	3.6	6.0	7.6	9.4	12.5
21	0.9	6.4	5.4	5.6	8.0	5.4	5.6	6.0	6.8	8.0	3.9	6.4	3.7	6.6	3.7	3.9	5.2	6.5	6.6
22	4.8	9.0	10.0	16.3	9.9	9.0	9.7	10.0	11.6	16.3	11.9	21.9	9.0	15.2	9.0	11.2	13.6	16.9	21.9
23	408.0	744.0	900.5	1,029.0	785.7	744.0	775.3	843.1	932.6	1,029.0	883.1	801.4	1,083.8	1,017.8	801.4	862.7	950.5	1,034.3	1,083.8
24	105.2	264.0	315.3	376.8	408.8	264.0	302.5	346.1	384.8	408.8	420.2	305.6	363.3	327.9	305.6	322.3	345.6	377.5	420.2
25	12.6	40.4	37.4	33.9	34.6	33.9	34.4	36.0	38.2	40.4	32.3	43.2	34.8	27.9	27.9	31.2	33.6	36.9	43.2
26	8.3	23.7	27.1	21.6	19.2	19.2	21.0	22.7	24.6	27.1	24.2	31.1	23.4	23.1	23.1	23.3	23.8	25.9	31.1
27	18.2	72.5	44.9	49.2	34.3	34.3	42.3	47.1	55.0	72.5	61.6	49.0	30.7	45.3	30.7	47.2	47.2	52.2	61.6
28	21.6	110.8	67.6	68.2	62.9	62.9	66.4	67.9	78.9	110.8	87.1	81.6	108.9	84.0	81.6	83.4	85.6	92.6	108.9
29	12.4	30.7	34.2	30.7	38.4	30.7	30.7	32.5	35.3	38.4	41.6	48.9	33.5	45.2	33.5	39.6	43.4	46.1	48.9
30	7.5	21.7	24.0	22.4	37.9	21.7	22.2	23.2	27.5	37.9	34.5	18.4	23.0	55.0	18.4	21.9	28.8	39.6	55.0
31	49.8	119.3	108.8	123.6	119.9	108.8	116.7	119.6	120.8	123.6	105.5	158.5	92.8	82.6	92.8	90.3	99.2	118.8	158.5
32	1.5	4.2	7.1	7.1	5.4	4.2	5.1	6.3	7.1	7.1	6.9	5.5	4.2	6.8	4.2	5.2	6.2	6.8	6.9
33	14.1	51.9	39.3	50.9	42.7	39.3	41.9	46.8	51.2	51.9	64.0	50.4	64.5	54.4	50.4	53.4	59.2	64.1	64.5
34	25.2	68.2	112.1	62.5	49.0	49.0	59.1	65.4	79.2	112.1	53.1	88.8	69.0	80.4	53.1	65.0	74.7	82.5	88.8
35	104.2	284.1	432.7	275.1	233.0	233.0	264.6	279.6	321.3	432.7	251.3	263.3	298.4	293.7	251.3	260.3	278.5	294.9	298.4
36	16.0	24.9	38.8	22.0	37.2	22.0	24.2	31.1	37.6	38.8	43.2	31.3	47.5	38.1	31.3	36.4	40.7	44.3	47.5
37	3.9	11.6	9.2	8.3	16.1	8.3	9.0	10.4	12.7	16.1	6.8	25.8	9.2	9.0	6.8	8.5	9.1	13.4	25.8
38	147.8	337.4	371.0	325.1	485.9	325.1	334.3	354.2	399.7	485.9	465.9	400.9	464.9	440.9	400.9	430.9	452.9	465.2	465.9
39	4.6	13.9	7.9	21.6	22.8	7.9	12.4	17.8	21.9	22.8	13.1	19.1	14.8	23.4	13.1	14.4	17.0	20.2	23.4
40	2.3	3.0	2.4	38.4	13.1	2.4	2.9	8.1	19.4	38.4	12.7	8.5	5.7	7.2	5.7	6.8	7.9	9.6	12.7
41	1.8	16.6	12.1	5.9	12.2	5.9	10.6	12.2	13.3	16.6	13.7	12.7	8.3	14.8	8.3	11.6	13.2	14.0	14.8
42	9.2	21.6	24.0	27.3	24.2	21.6	23.4	24.1	25.0	27.3	22.1	25.0	20.0	30.5	20.0	21.6	23.6	26.4	30.5
43	35.3	95.0	42.8	84.2	101.0	42.8	73.9	89.6	96.5	101.0	118.7	89.7	90.0	64.9	64.9	83.5	89.9	97.2	118.7
44	5.1	25.2	13.5	51.6	51.7	13.5	22.3	38.4	51.6	51.7	30.9	21.7	11.4	25.2	11.4	19.1	23.5	26.6	30.9
45	8.8	32.7	23.1	31.5	33.1	23.1	29.4	32.1	32.8	33.1	27.4	53.9	39.0	37.0	27.4	34.6	38.0	42.7	53.9
46	28.4	88.7	85.6	85.4	95.1	85.4	85.6	87.2	90.3	95.1	100.8	92.3	89.1	103.8	89.1	91.5	96.6	101.6	103.8
47	79.1	146.7	136.9	191.6	171.6	136.9	144.3	159.2	176.6	191.6	239.1	175.2	191.6	161.0	161.0	171.7	183.4	203.5	239.1
48	12.0	40.8	10.0	44.6	20.3	10.0	17.7	30.6	41.8	44.6	40.9	26.7	33.5	19.1	19.1	24.8	30.1	35.4	40.9
49	3.5	12.0	10.2	13.7	15.1	10.2	11.6	12.9	14.1	15.1	13.4	9.1	11.9	11.2	9.1	10.7	11.6	12.3	13.4
50	16.4	44.6	47.5	41.2	42.4	41.2	42.1	43.5	45.3	47.5	63.2	33.0	37.2	33.9	33.0	33.7	35.6	43.7	63.2
51	69.2	222.6	178.6	176.1	188.6	176.1	178.0	183.6	197.1	222.6	122.8	209.1	202.8	264.9	122.8	182.8	206.0	223.1	264.9
52	8.1	22.9	16.2	23.1	13.5	13.5	15.5	19.6	23.0	23.1	28.0	36.5	22.1	21.3	21.3	21.9	25.1	30.1	36.5
53	19.5	47.4	34.3	49.3	39.9	34.3	38.5	43.7	47.9	49.3	52.1	38.3	49.6	47.8	38.3	45.4	48.7	50.2	52.1
54	19.2	59.3	31.8	83.1	60.4	31.8	52.4	59.9	66.1	83.1	86.6	54.9	44.2	63.8	44.2	52.2	59.4	69.5	86.6
55	8.4	23.5	11.2	20.1	18.3	11.2	16.5	19.2	21.0	23.5	20.4	20.6	24.9	25.9	20.4	20.6	22.8	25.2	25.9
56	12.4	58.3	44.8	37.9	49.6	37.9	43.1	47.2	51.8	58.3	54.7	98.3	32.8	68.7	32.8	49.2	61.7	76.1	98.3
57	40.7	77.2	101.2	83.4	85.5	93.8	77.2	83.4	89.7	95.7	101.2	85.0	110.2	88.6	92.3	85.0	87.7	90.5	98.6
58	13.1	44.6	57.0	31.0	46.9	31.0	41.2	45.8	49.4	57.0	34.5	28.5	30.8	43.6	28.5	30.2	32.7	36.8	43.6
59	103.1	230.0	219.7	263.3	258.8	219.7	227.4	244.4	259.9	263.3	223.6	206.1	210.1	205.2	205.2	205.9	208.1	213.5	223.6
60	12.8	87.3	76.2	52.1	61.2	52.1	58.9	68.7	79.0	87.3	35.5	43.2	68.2	44.2	35.5	41.3	43.7	50.2	68.2
61	20.7	66.0	60.2	61.4	68.4	60.2	61.1	63.7	66.6	68.4	71.0	40.7	70.2	68.8	40.7	61.8	69.5	70.4	71.0
62	18.3	45.6	52.1	47.8	45.6	45.6	45.6	46.7	48.9	52.1	39.7	58.1	53.6	57.7	39.7	50.1	55.7	57.8	58.1
63	20.7	41.2	37.2	47.2	51.4	37.2	40.2	44.2	48.3	51.4	56.5	37.7	36.1	19.9	19.9	32.1	36.9	42.4	56.5
64	43.7	242.0	206.8	278.3	190.6	190.6	202.8	224.4	251.1	278.3	224.0	142.6	127.6	188.9	127.6	138.9	165.8	197.7	224.0
65	19.8	55.6	47.8	41.6	49.2	41.6	46.3	48.5	50.8	55.6	37.7	49.0	46.5	56.5	37.7	44.3	47.8	50.9	56.5
66	18.4	58.2																	

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	22.7	22.4	24.4	25.0	22.4	22.7	23.6	24.6	25.0
DF_I	8.4	7.8	8.7	8.0	7.8	8.0	8.2	8.5	8.7
DF_SS	54.0	53.9	57.9	54.2	53.9	54.0	54.1	55.1	57.9
DF_WS	23.3	22.5	24.5	25.4	22.5	23.1	23.9	24.7	25.4
LF_CR	52.4	49.2	52.4	53.0	49.2	51.6	52.4	52.5	53.0
LF_CS	57.4	57.8	58.7	60.0	57.4	57.7	58.3	59.0	60.0
LF_I	13.2	13.4	15.2	12.5	12.5	13.1	13.3	13.8	15.2
LF_SR	44.0	35.8	37.7	39.8	35.8	37.2	38.8	40.9	44.0
LF_SS	50.5	47.6	54.9	53.1	47.6	49.8	51.8	53.5	54.9
LF_WR	50.1	50.2	50.3	49.3	49.3	49.9	50.2	50.2	50.3
LF_WS	54.4	57.6	56.5	53.7	53.7	54.2	55.5	56.8	57.6