



TPC Express Benchmark™ IoT Full Disclosure Report

Lindorm 3.4.10

running on

Alibaba Cloud Lindorm Cluster
(10 TSDB Elastic Compute Units)

with

Alibaba Group Enterprise Linux Server 7.2 (Paladin)

TPCx-IoT Version

2.0.1

Report Edition

First

Report Submitted

March 10, 2022

First Edition – March 2022

Alibaba Cloud, the Sponsor of this benchmark test, believes that the information in this document is accurate as of the publication date. The information in this document is subject to change without notice. The Sponsor assumes no responsibility for any errors that may appear in this document.

The pricing information in this document is believed to accurately reflect the current prices as of the publication date. However, the Sponsor provides no warranty of the pricing information in this document.

Benchmark results are highly dependent upon workload, specific application requirements, and system design and implementation. Relative system performance will vary because of these and other factors.

Therefore, the TPC Express Benchmark™ should not be used as a substitute for a specific customer application benchmark when critical capacity planning and/or product evaluation decisions are contemplated.

All performance data contained in this report was obtained in a rigorously controlled environment. Results obtained in other operating environments may vary significantly. No warranty of system performance or price/performance is expressed or implied in this report.

*Alibaba Cloud and the Alibaba Cloud Logo are trademarks of Alibaba Group and/or its affiliates in the U.S. and other countries. Third party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between **Alibaba Cloud** and any other company.*

TPC Express Benchmark™ IoT, TPCx-IoT, and IoTps, are registered certification marks of the Transaction Processing Performance Council.

The Alibaba Cloud products, services or features identified in this document may not yet be available or may not be available in all areas and may be subject to change without notice. Consult your local Alibaba Cloud business contact for information on the products or services available in your area. You can find additional information via Alibaba Cloud's international website at <https://www.alibabacloud.com/>. Actual performance and environmental costs of Alibaba Cloud products will vary depending on individual customer configurations and conditions.

Copyright© 2022 Alibaba Cloud

All rights reserved. Permission is hereby granted to reproduce this document in whole or in part provided the copyright notice printed above is set forth in full text or on the title page of each item reproduced

Abstract

Alibaba Cloud conducted the TPC Express Benchmark™ IoT (TPCx-IoT) on a Lindorm Cluster with 10 TSDB Elastic Compute Units. The software used included Lindorm 3.4.10. This report provides full disclosure of the methodology and results. All testing was conducted in conformance with the requirements of the TPCx-IoT Standard Specification, Revision 2.0.1. The benchmark results are summarized below.

Configuration Summary


Sponsor	Cluster Nodes	Storage Software	Operating System
Alibaba Cloud	Alibaba Cloud Elastic Compute Service Servers	Lindorm 3.4.10	Alibaba Group Enterprise Linux Server 7.2 (Paladin)

TPC Express Benchmark™ IoT Metrics

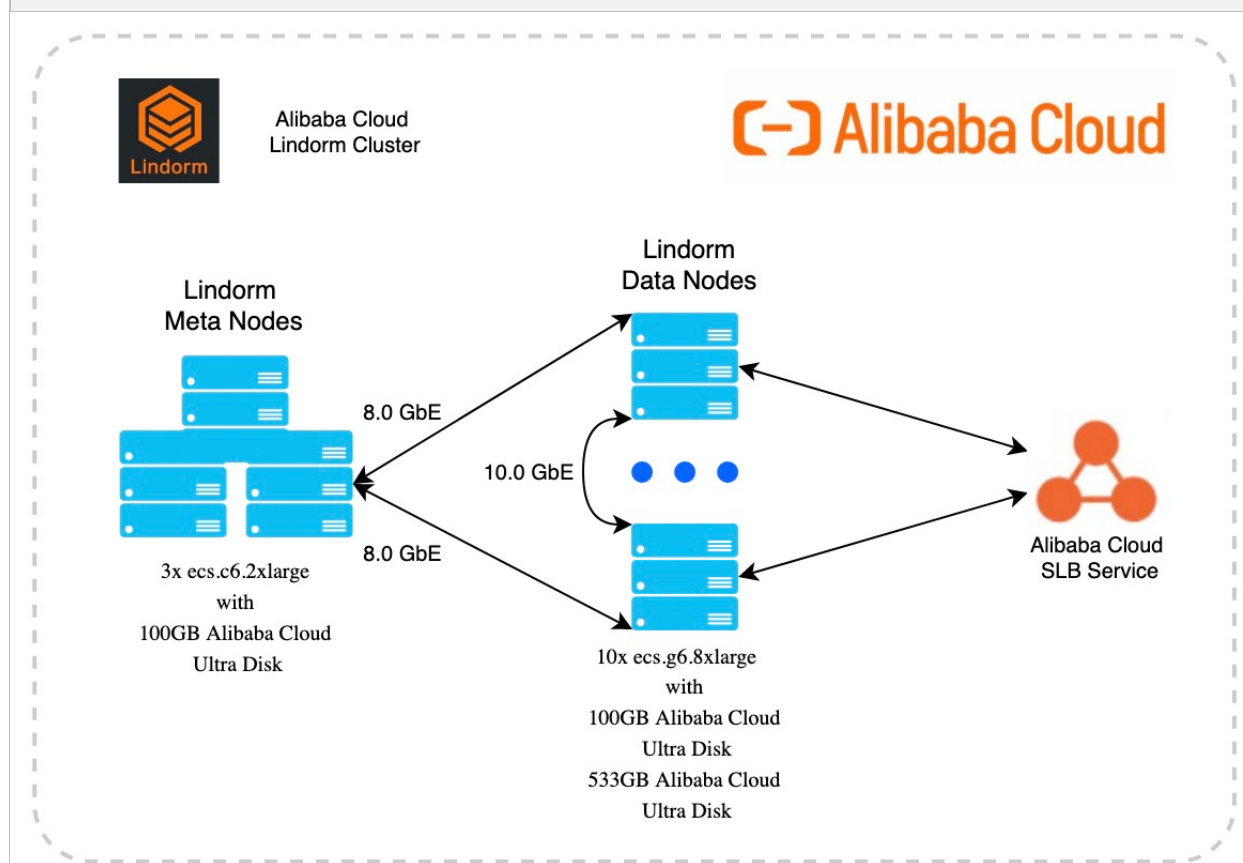
Total System Cost (CNY)	IoTps	CNY/kIoTps	Availability Date
¥ 1,092,273.00	4,847,961.5241	¥ 225.31	Mar. 10, 2022

Executive Summary

The Executive Summary follows on the next several pages.


	Lindorm 3.4.10		TPCx-IoT	2.0.1
			TPC Pricing	2.8.0
			Report Date	March 10, 2022
Total System Cost ¥ 1,092,273.00 CNY	TPCx-IoT Performance Metric 4,847,961.5241 IoTps		Price/Performance ¥ 225.31 CNY/kIoTps	
Servers	Operating System	Other Software	Availability Date	
ecs.c6.2xlarge and ecs.g6.8xlarge	Alibaba Group Enterprise Linux Server 7.2 (Paladin)	None	March 10, 2022	


System Under Test Configuration Overview



Total Servers:	13 Alibaba Cloud ECSs - 3x ecs.c6.2xlarge - 10x ecs.g6.8xlarge
Total Processors/Cores/Threads:	13/172/344

Server Configuration:	3x Lindorm Meta Nodes	10x Lindorm Data Nodes
Processor:	1x ecs.c6.2xlarge (Intel Xeon(Cascade Lake) Platinum 8269CY, 2.50GHz)	1x ecs.g6.8xlarge (Intel Xeon(Cascade Lake) Platinum 8269CY, 2.50GHz)
Memory:	16 GB	128 GB
Storage Device:	1x 100GB Alibaba Cloud Ultra Disk	1x 100GB Alibaba Cloud Ultra Disk 4x 533GB Alibaba Cloud Ultra Disk
Network:	Bandwidth: 8.0 Gbps, Packet forwarding rate: 800,000 PPS	Bandwidth: 10.0 Gbps, Packet forwarding rate: 2,000,000 PPS
Connectivity:	Alibaba Cloud SLB Service	

		Lindorm 3.4.10			TPCx-IoT 2.0.1	
					TPC Pricing 2.8.0	
					Report Date	March 10, 2022
Description	Part Number	Source	List Price (CNY)	Qty	Extended Price (CNY)	3 yr. Maint. Price (CNY)
Licensed Compute Services						
Alibaba Cloud Lindorm Cluster 3-Year Prepaid Plan		1	2,164,752.00	1	2,164,752.00	Included
- Alibaba Cloud ECS Instance : ecs.c6.2xlarge	ecs.c6.2xlarge	1	included	3		
- Alibaba Cloud ECS Instance : ecs.g6.8xlarge	ecs.g6.8xlarge	1	included	10		
- 100GB ECS System Disk (Alibaba Cloud Ultra Disk)		1	included	13		
- 533GB ECS Data Disk (Alibaba Cloud Ultra Disk)		1	included	40		
- Alibaba Cloud SLB		1	included	1		
- Private Network		1	included	1		
Licensed Software Services						
Alibaba Group Enterprise Linux Server 7.2 (Paladin)		1	included	13		
Lindorm 3.4.10		1	included	13		
Lindorm Cluster 3-Year 24*7 Technical Support		1	included	1		
					Sub-Total	2,164,752.00 CNY
Infrastructures						
Hewlett-Packard Star 14 Youth Edition Laptop (includes spares)		2	3,299.00	3	9,897.00	
					Sub-Total	9,897.00 CNY
Discounts*						
50% OFF for 3-Year Prepaid Plan		1			(1,082,376.00)	
					Sub-Total	(1,082,376.00 CNY)
					Total	1,092,273.00 CNY
Price Sources 1) Alibaba Cloud, 2) Tmall.com		Three-Year Cost of Ownership (CNY) : ￥1,092,273.00 CNY IoTps : 4,847,961.5241 CNY / kIoTps : ￥225.31				
Audited by Pre-Publication Board * 50% OFF discount is available for 36 months or more prepaid service subscription in all Alibaba Cloud regions.						
<i>Prices used in TPC benchmarks must reflect the actual prices a customer would pay for purchase of the components in all regions specified in the result. Individually negotiated discounts are not permitted. Special prices based on assumptions about past or future purchases are not permitted. All discounts reflect standard pricing conventions for the listed components. For complete details, see the pricing section of the TPC benchmark specification. If you find that stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank you.</i>						

		Lindorm 3.4.10		TPCx-IoT	2.0.1
				TPC Pricing	2.8.0
				Report Date	March 10, 2022
Numerical Quantities					
Scale Factor		9,162,720,000			
Performance Run (Run1)					
Warmup Run Start Time		2022-03-07 20:39:07.000			
Warmup Run End Time		2022-03-07 21:36:17.000			
Warmup Run Elapsed Time		2563.802			
Measured Run Start Time		2022-03-07 21:36:18.000			
Measured Run End Time		2022-03-07 22:07:49.000			
Measured Run Elapsed Time		1890.015			
Performance Metric (IoTps)		4,847,961.5241			
Repeatability Run (Run2)					
Warmup Run Start Time		2022-03-07 22:09:54.000			
Warmup Run End Time		2022-03-07 22:40:21.000			
Warmup Run Elapsed Time		1826.490			
Measured Run Start Time		2022-03-07 22:40:23.000			
Measured Run End Time		2022-03-07 23:11:45.000			
Measured Run Elapsed Time		1881.494			
Performance Metric (IoTps)		4,869,917.2040			



Lindorm 3.4.10

TPCx-IoT	2.0.1
TPC Pricing	2.8.0
Report Date	March 10, 2022

Run Report for Run 1 (Performance Run)

=====

TPCx-IoT Performance Metric (IoTps) Report

Test Run 1 details : Total Time For Warmup Run In Seconds = 2563.802

Test Run 1 details : Total Time In Seconds = 1890.015

Total Number of Records = 9162720000

TPCx-IoT Performance Metric (IoTps): 4847961.5241

=====

Run Report for Run 2 (Repeatability Run)

=====

TPCx-IoT Performance Metric (IoTps) Report

Test Run 2 details : Total Time For Warmup Run In Seconds = 1826.490

Test Run 2 details : Total Time In Seconds = 1881.494

Total Number of Records = 9162720000

TPCx-IoT Performance Metric (IoTps): 4869917.2040

=====

	Lindorm 3.4.10		TPCx-IoT	2.0.1
			TPC Pricing	2.8.0
			Report Date	March 10, 2022

Revision History

Date	Edition	Description
March 10, 2022	First	Initial Publication

Table of Contents

Abstract	3
Executive Summary	3
Table of Contents	10
Clause 0 Preamble	11
0.1 TPC Express Benchmark™ IoT Overview.....	11
Clause 1 General Items.....	12
1.1 Test Sponsor	12
1.2 Parameter Settings	12
1.3 Configuration Diagrams	12
1.3.1 Measured Configuration	13
1.3.2 Priced Configuration.....	14
1.4 Dataset Distribution	14
1.5 Software Component Distribution	14
Clause 2 Workload Related Items	16
2.1 Hardware and Software Tunable Parameters.....	16
2.2 Run Report	16
2.3 Benchmark Kit Identification	16
2.4 Benchmark Kit Changes	17
Clause 3 Scale Factor and Metrics	18
3.1 Scale Factor, Performance, Price-Performance	18
Supporting File Index	24

Clause 0 Preamble

0.1 TPC Express Benchmark™ IoT Overview

TPC Express Benchmark™ IoT (TPCx-IoT) was developed to provide an objective measure of hardware, operating system and commercial NoSQL database software distributions, and to provide the industry with verifiable performance, price-performance and availability metrics. The benchmark models a continuous system availability of 24 hours a day, 7 days a week.

Even though the modeled application is simple, the results are highly relevant to hardware and software dealing with IoT gateway systems in general. TPCx-IoT stresses both hardware and software including database APIs and network connections to the database. This workload can be used to assess a broad range of NoSQL databases. TPCx-IoT can be used to assess a range of NoSQL implementations in a technically rigorous and directly comparable and vendor-neutral manner. The metric effectively represents the total number of records that can be inserted into a NoSQL database per second while running queries against the database.

The TPCx-IoT kit is available from the TPC (See www.tpc.org/tpcx-iot for more information). Users must sign up and agree to the TPCx-IoT User Licensing Agreement (ULA) to download the kit. Re- distribution of the kit is prohibited. All related work (such as collaterals, papers, derivatives) must acknowledge the TPC and include TPCx-IoT copyright. The TPCx-IoT Kit includes: the TPCx-IoT Specification document, the TPCx-IoT Users Guide document, shell scripts to set up the benchmark environment and Java code to execute the benchmark load.

The purpose of TPC benchmarks is to provide relevant, objective performance data to industry users. To achieve that purpose, TPC benchmark specifications require that benchmark tests be implemented with systems, products, technologies and pricing that:

- Are generally available to users;
- Are relevant to the market segment that the individual TPC benchmark models or represents (e.g., TPCx- IoT models and represents a NoSQL database mimicking an IoT gateway system)
- Would plausibly be implemented by a significant number of users in the market segment the benchmark models or represents.

The use of new systems, products, technologies (hardware or software) and pricing is encouraged so long as they meet the requirements above. Specifically prohibited are benchmark systems, products, technologies or pricing (hereafter referred to as "implementations") whose primary purpose is performance optimization of TPC benchmark results without any corresponding applicability to real- world applications and environments. In other words, all "benchmark special" implementations that improve benchmark results but not real-world performance or pricing, are prohibited.

The rules for pricing are included in the TPC Pricing Specification. Further information is available at www.tpc.org.

Clause 1 General Items

1.1 Test Sponsor

A statement identifying the benchmark sponsor(s) and other participating companies must be provided.

This benchmark was sponsored by Alibaba Cloud Computing Ltd.

1.2 Parameter Settings

Settings must be provided for all customer-tunable parameters and options which have been changed from the defaults found in actual products, including by not limited to:

- *Configuration parameters and options for server, storage, network and other hardware component incorporated into the pricing structure;*
- *Configuration parameters and options for operating system and file system component incorporated into the pricing structure;*
- *Configuration parameters and options for any other software component incorporated into the pricing structure;*
- *Compiler optimization options.*

Comment 1: In the event that some parameters and options are set multiple times, it must be easily discernible by an interested reader when the parameter or option was modified and what new value it received each time.

Comment 2: This requirement can be satisfied by providing a full list of all parameters and options, as long as all those that have been modified from their default values have been clearly identified and these parameters and options are only set once.

The Supporting Files Archive contains the parameters used to configure the components involved in this benchmark.

1.3 Configuration Diagrams

Diagrams of both measured and priced configurations must be provided, accompanied by a description of the differences.

This includes, but is not limited to:

- *Total number of nodes used*
- *Total number and type of processors used/total number of cores used/total number of threads used (including sizes of L2 and L3 caches)*
- *Size of allocated memory, and any specific mapping/partitioning of memory unique to the test*
- *Number and type of disk units (and controllers, if applicable)*
- *Number of channels or bus connections to disk units, including their protocol type*
- *Number of LAN (for example, Ethernet) connections and speed for switches and other hardware components physically used in the test or are incorporated into the pricing structure*
- *Type and the run-time execution location of software components*

1.3.1 Measured Configuration

Figure 1-1 shows the measured configuration.

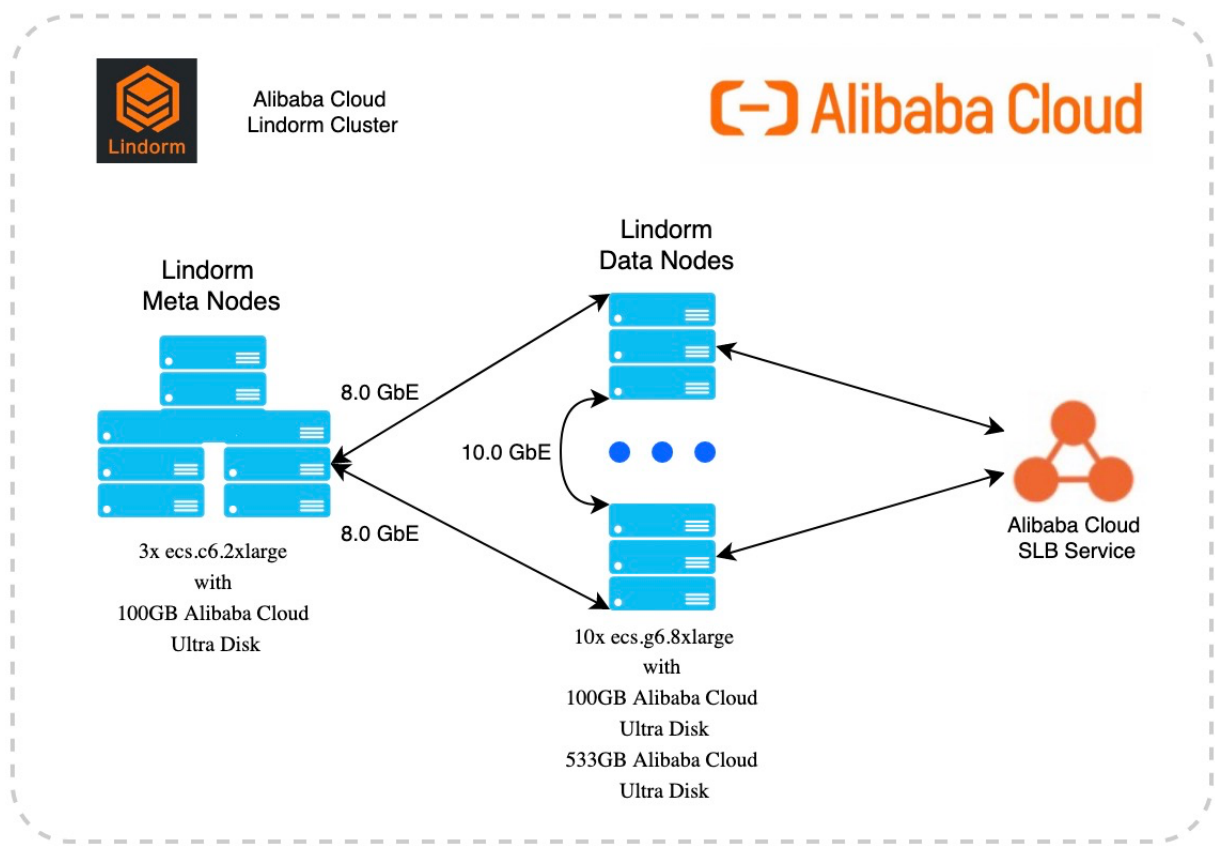


Figure 1-1 Measured Configuration

The measured configuration consisted of:

Total Nodes:	13
Total Processors/Cores/Threads:	13/172/344
Total Memory:	1328 GB
Total Number of Storage Devices:	10
Total Storage Capacity:	21320 GB
Connectivity:	1x Alibaba Cloud SLB Service (Bandwidth: 20 Gbps, Connections: 20,000 CPS, Packet forwarding rate: 1,650,000 PPS)

Servers:	3x Meta Nodes	10x Data Nodes
Processors/Cores/Threads:	1/4/8	1/16/32
Processor Model:	1x ecs.c6.2xlarge (Intel Xeon(Cascade Lake) Platinum 8269CY, 2.50GHz)	1x ecs.g6.8xlarge (Intel Xeon(Cascade Lake) Platinum 8269CY, 2.50GHz)
Memory:	16GB	128GB
Storage Devices:	1x 100GB System Disk Alibaba Cloud Ultra Disk	1x 100GB System Disk Alibaba Cloud Ultra Disk 4x 533GB Data Disk Alibaba Cloud Ultra Disk
Network:	Bandwidth: 8.0 Gbps, Packet forwarding rate: 800,000 PPS	Bandwidth: 10.0 Gbps, Packet forwarding rate: 2,000,000 PPS

The distribution of software components over server nodes is detailed in section 1.5.

1.3.2 Priced Configuration

There are no differences between the priced configuration and the measured configuration.

1.4 Dataset Distribution

The distribution of dataset across all media must be explicitly described.

Table 1-1 describes the distribution of the dataset across all storage media in the system.

Server	Storage	Disk Drive	Description of Content
1-3	System Storage	100 GB Alibaba Cloud Ultra Disk	Operating System, Swap, Root, Temp, Lindorm Meta Data
4-13	System Storage	100 GB Alibaba Cloud Ultra Disk	Operating System, Swap, Root, Temp,
	Data Storage	4x 533GB Alibaba Cloud Ultra Disk	Lindorm Data

Table 1-1 Dataset Distribution Across Storage Media

1.5 Software Component Distribution

The distribution of various software components across the system must be explicitly described.

Table describes the distribution of the software components across the system.

Server	Lindorm MetaServer	Lindorm DataServer	Lindorm TSServer
1	X		
2	X		
3	X		
4		X	X
5		X	X
6		X	X
7		X	X
8		X	X
9		X	X
10		X	X
11		X	X
12		X	X
13		X	X

Table 1-2 Software Component Distribution Across Nodes

The storage system software used was Lindorm 3.4.10.

Clause 2 Workload Related Items

2.1 Hardware and Software Tunable Parameters

Script or text used to set all hardware and software tunable parameters must be reported.

The Supporting Files Archive contains the parameters used to configure the components involved in this benchmark.

2.2 Run Report

The run report generated by the TPCx-IoT Kit for Performance Run and Repeatability Run must be reported.

The [Supporting Files Archive](#) contains the full run report. The following excerpts from the run report summarize the Performance Run and the Repeatability Run.

Run Report for Run 1 (Performance Run)

=====

TPCx-IoT Performance Metric (IoTps) Report

Test Run 1 details : Total Time For Warmup Run In Seconds = 2563.802

Test Run 1 details : Total Time In Seconds = 1890.015

Total Number of Records = 9162720000

TPCx-IoT Performance Metric (IoTps): 4847961.5241

=====

Run Report for Run 2 (Repeatability Run)

=====

TPCx-IoT Performance Metric (IoTps) Report

Test Run 2 details : Total Time For Warmup Run In Seconds = 1826.490

Test Run 2 details : Total Time In Seconds = 1881.494

Total Number of Records = 9162720000

TPCx-IoT Performance Metric (IoTps): 4869917.2040

=====

2.3 Benchmark Kit Identification

The version of the TPCx-IoT kit and checksums for key files are listed below.

TPCx-IoT Kit Version	2.0.1
----------------------	-------

File	MD5
TPCx-IoT-master.sh	cc24620cfdee08290d771c5471a8d1ee

IoT_cluster_validate_suite.sh	b2342754095f973ce27f43c28d3ca0ae
tpcx-iot/lindormtsdb-binding/lib/core-0.13.0-SNAPSHOT.jar	4e27f33ec3b4727d9cea30a580c8669c

2.4 Benchmark Kit Changes

No modifications were made to the TPC provided kit.

Clause 3 Scale Factor and Metrics

3.1 Scale Factor, Performance, Price-Performance

The metrics for Run 1 and Run 2 are summarized below.

	Run 1	Run 2
Scale Factor	9,162,720,000	9,162,720,000
Measured Run Time (seconds)	1,890.015	1,881.494
IoTps	4,847,961.5241	4,869,917.2040

Run1 Price-Performance: **225.31** ¥/kIoTps

APPENDIX A : Purchase Page for Creating Alibaba Cloud Lindorm Cluster with 3-Year Subscription

Prepaid 3-year subscription has 50% off discount

购物车 1

工单

备案

简体中文

huyaf****

云原生多模数据库Lindorm(包年包月)

商品类型

Lindorm(包年包月)

Lindorm(按量付费)

LindormServerless(包年包月)

LindormServerless(按量付费)

Lindorm单节点(包年包月)

Lindorm单节点(按量付费)

地域

中国

亚太

欧洲与美洲

华南3 (广州)

华南1 (深圳)

华北2 (北京)

华北1 (青岛)

华东2 (上海)

中国 (香港)

华北5 (呼和浩特)

华北3 (张家口)

华东1 (杭州)

可用区

华东 2 可用区 E

网络类型

专有网络

专有网络 (VPC)

shanghai-vpc

如果当前可用区无专有网络, [点击立刻免费创建](#)。

专有网络交换机

shanghai-e-vswitch

如果当前可用区无专有网络交换机, [点击立刻免费创建](#)。

集群名称

Lindorm_TSDB_TPCx_IoT

存储类型

标准型云存储

性能型云存储

容量型云存储

本地SSD盘

本地HDD盘

选择数据引擎

[如何选择数据引擎](#)

宽表节点规格(HBase/Cassandra API)

4 核 8 GB (独享规格)

宽表节点数量

0

时序节点规格(TSDB API)

32 核 128 GB (独享规格)

时序节点数量

10

搜索节点规格(Solr API)

4 核 16 GB (独享规格)

搜索节点数量

0

文件节点规格(HDFS API)

标准规格

文件节点数量

0

选择存储容量

[如何选择存储](#)

存储空间

480GB

31680GB

63360GB

95040GB

126720GB

10560

GB

云存储系列购买空间即为所得空间。例: 购买1TB容量型存储, 可存放1TB业务数据

是否选购冷存储

否

是

购买时长

1个月

2个月

3个月

4个月

5个月

6个月

3年

☐ 到期自动续费

配置费用

CNY¥1,082,376.00



购买3年及以上, 享官网价格5折优惠 省 CNY¥1,082,376.00

立即购买

加入购物车

购物车 1

Google Chrome translated English version

  Shopping cart 1 [Work order](#) [Record](#) [Simplified Chinese](#) [huya*****](#)

Cloud native multi-mode database Lindorm (annual and monthly subscription)

Product Types

Lindorm (yearly and monthly) Lindorm (pay as you go) LindormServerless (yearly subscription)

LindormServerless (pay-as-you-go) Lindorm single node (yearly and monthly) Lindorm single node (pay as you go)

area


China Asia Pacific Europe and America


South China 3 (Guangzhou) South China 1 (Shenzhen) China North 2 (Beijing) China North 1 (Qingdao) East China 2 (Shanghai)

China Hong Kong North China 5 (Hohhot) China North 3 (Zhangjiakou) East China 1 (Hangzhou)

Availability zone East China 2 Availability Zone E

Network Type Private network

Private Network (VPC) shanghai-vpc 
If there is no dedicated network in the current available zone, [click Create now for free](#).

Proprietary Network Switch shanghai-e-vswitch 
If there is no dedicated network switch in the current available zone, [click Create now for free](#).



Cluster name Lindorm_TSDB_TPCx_IoT

Storage type



Standard cloud storage Performance-based cloud storage Capacity cloud storage Local SSD disk

Local HDD Disk



Choose a data engine [How to choose a data engine](#)

Wide table node specifications (HBase/Cassandra API)  4 core 8 GB (exclusive spe... 



Number of wide table nodes - 0 +


Timing node specifications (TSDB API)  32 core 128 GB (exclusive... 

Number of timing nodes - 10 +

Search node specifications (Solr API)  4 core 16 GB (exclusive s... 

Number of search nodes - 0 +

File node specifications (HDFS API)  Standard 

Number of file nodes  - 0 +


Choose storage capacity [How to choose storage](#)

storage

480GB 31680GB 63360GB 95040GB 126720GB - 10560 + GB


The purchased space of the cloud storage series is the obtained space. Example: Purchase 1TB capacity storage, which can store 1TB business data

Whether to choose cold storage no Yes

Configuration cost **CNY¥1,082,376.00** 

Purchase 3 years and above, enjoy 50% off the official website price , save CNY¥1,082,376.00

Buy now add to Shopping Cart

 shopping cart 1

APPENDIX B : Third-Party Price Quotes

Hewlett-Packard Star 14 Youth Edition Laptop (Original Chinese version)

Tmall 天猫 惠普中国官方旗舰店 描述 服务 物流 4.8 4.8 4.8 手机逛

搜索 天猫 商品/品牌/店铺 搜天猫 搜本店

hp 惠普中国官方旗舰店 首页 全部产品 星青春版 星系列 光影精灵 高端旗舰本 台式机/显示器 外设配件 联系客服

值得入手星青春版的N大理由

- 可选锐龙5000系处理器 7nm制程, 硬核实力, 轻松应对日常办公和学习
- Windows 10家庭中文版 预装价值748元Office 瞬间响应, 秒速开机 可选16G内存, PCIe 512G固态硬盘
- 14英寸 IPS全面屏 6.5mm窄边框 轻薄时尚 两指可持 轻1.45kg, 薄17.9mm 高颜值外观 高级银时尚配色
- 疾速快充 10H续航 45分钟快充50% 丰富接口 任意扩展 多接口Type-C

★ 收藏商品 (394726人气) 举报

【爆款抢购】HP/惠普星14青春版可选锐龙R3/R5处理器笔记本电脑学生女生轻薄办公笔记本电脑笔记本惠普官方旗舰店
【时尚轻薄 疾速快充】
天猫电器城 正快省新 闪电到家 超值包邮

双11礼遇季 此商品12月21日开卖, 请提前加购!

价格 ¥3599.00
促销价 **¥3299.00** 活动中
礼遇价 **¥3299.00**
本店活动 满3000元减400元 更多优惠

运费 湖北武汉 至 杭州余杭区 仓前街道 快速 0.00
18:00前付款, 今天发货, 承诺12月23日送达, 晚到必赔

月销量 **500+** 累计评价 **19517** 送天猫积分 **329**

内存容量 4GB 8GB 16GB
硬盘容量 256GB PCIe 固态硬盘 512GB PCIe 固态硬盘
颜色分类 银色
套餐类型 【14英寸超值版】 速龙 3050U+性能核显
【14英寸特惠版】 R3-3250U +性能核显
【14英寸升级版】 R3-5300U+性能核显
【15.6英寸强劲版】 R7-4700U+性能核显
【14英寸进阶版】 R5-5500U+性能核显
【14英寸发烧版】 R7-5700U+性能核显

数量 1 件 库存4件 (每人限购3件)
服务 延长保修1年 ¥74.00 意外保修二年 ¥97.00
花呗分期 享3期免息, 可免75.88元, 每期1099.67元(每日36.66元)
什么是花呗分期
¥1099.66x3期 (0手续费) ¥574.57x6期 (含手续费) ¥295.52x12期 (含手续费)
¥158.06x24期 (含手续费)

立即购买 **加入购物车**

服务承诺 意外保修 闪电到家 超值包邮 全国联保 支付方式
正品保证 极速退款 退货运费险
七天无理由退换

看了又看

- 惠普ENVY14创意本 6499 ¥6899.00 省400
- 星14 高颜值金属本 5099 ¥5699.00 省600
- 星13 Air 轻薄本 4899 ¥5699.00 省800
- 星14s 高性价比轻薄本 2999 ¥3599.00 省600
- 星15s 锐龙轻薄本 3399 ¥3799.00 省400

Google Chrome translated English version

Tmall 天猫 HP China Official Flagship Store Brand Direct describe logistics 4.8 ↑ 4.8 ↑ 4.8 ↑ Mobile shopping

hp HP China Official Flagship Store **front All products YouStar seLight Elf High-end fTaiwamonitor Periphera**

hp 惠普中国官方旗舰店

值得入手星青春版的N大理由

可选锐龙5000系处理器
7nm制程, 硬核实力, 轻松应对日常办公和学习

Windows 10家庭中文版
预装价值748元Office

瞬间响应, 秒速开机
可选16G内存, PCIe 512G固态

14英寸 IPS全面屏
6.5mm窄边框

轻薄时尚 两指可持
仅1.43kg, 薄17.9mm

高颜值外观
高级银时尚配色

疾速快充 10H续航
45分钟快充50%

丰富接口 任意扩展
多功能Type-C

★ collection of goods (394,726 popularity)

[Blasting style snapped up] HP/HP Star 14 Youth Edition optional Ryzen R3/R5 processor notebook computer student girl light and thin office notebook computer HP official flagship store

[Fashionable, thin, fast and fast charging]

天猫电器城 正快省新 闪电到家 超值包邮

双旦礼遇季 This product will go on sale on December 21st, please

price ¥3599.00

Sale price **¥3299.00** Active

Courtesy **¥3299.00**

price

Our store **Get 400 yuan off if you spend 3,000 yuan**

activities

freight Wuhan to Hangzhou ▼ Yuhang former warehouse Street ▼ Express 0.00
Payment before 18:00, delivery today, promise to be delivered on December 23, late arrival will be compensated

Monthly sales **500+** Cumulative evaluation **19517** Give Tmall Points **329**

Memory Capacity **4GB** **8GB** **16G**

Hard drive capacity **256GB PCIe SSD** **512GB PCIe SSD**

Color **silver**

Classification

Package Type **[14-inch premium version] Athlon 3050U+ performance core display**

[14-inch special edition] R3-3250U + performance core display

[14-inch upgrade version] R3-5300U+ performance core display

[15.6 inch powerful version] R7-4700U+ performance core display

[14-inch advanced version] R5-5500U+ performance core display

[14-inch fever version] R7-5700U+ performance core display

quantity 4 pieces in stock (limited to 3 pieces per person)

Serve **1 year extended warranty ¥74.00**

Accidental warranty for two years ¥97.00

Flower staging **Enjoy 3 interest-free periods, 75.88 yuan free, 1099.67 yuan per installment (36.66 yuan per day)**

What is Huabei staging

¥1099.66 x3 period (0 handling fee) **¥574.57 x6 period (including handling fee)**

¥295.52 x12 installments (including handling fee) **¥158.06 x24 period (including handling fee)**

Pledge **Accident warranty** **Lightning home** **Payment method**

Value free shipping **Nationwide warranty**

Authenticity guarantee **Fast refund**

Return freight insurance

Seven days no reason to return

Watch and

惠普ENVY14创想本
轻薄时尚 两指可持
仅1.43kg, 薄17.9mm
6499 ¥6899.00 省400

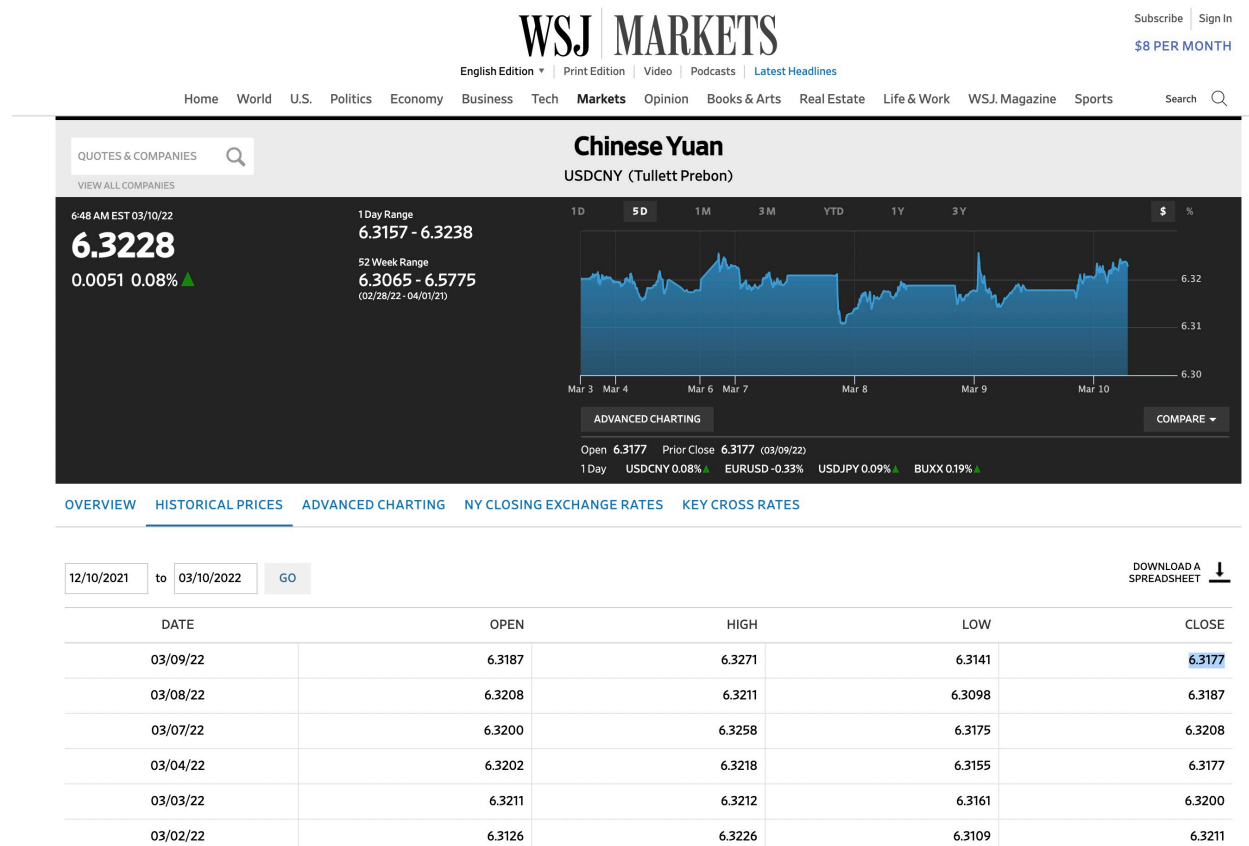
星14 高性能轻薄本
轻薄时尚 两指可持
仅1.43kg, 薄17.9mm
5099 ¥5699.00 省600

星13 Air轻薄本
轻薄时尚 两指可持
仅1.43kg, 薄17.9mm
4899 ¥5699.00 省800

星14s高性价比轻薄本
轻薄时尚 两指可持
仅1.43kg, 薄17.9mm
2999 ¥3599.00 省600

星15s锐龙轻薄本
轻薄时尚 两指可持
仅1.43kg, 薄17.9mm
3399 ¥3799.00 省400

APPENDIX C : USD to CNY Currency Conversion Rate



Currency conversion rate is quoted from <https://www.wsj.com/market-data/quotes/fx/USDCNY/historical-prices>.

Base on above currency exchange rate, following table shows the IoT Metrics with respect to USD :

TPC Express Benchmark™ IoT Metrics

Total System Cost (USD)	IoTps	USD/kIoTps
\$ 172,890.93	4,847,961.5241	\$ 35.66

*Note : USD to CNY currency conversion rate is 1:6.3177, which is based on the NY Closing Exchange Rate on Mar 9th, 2022.

Supporting File Index

Clause	Description	Archive Pathname
Clause 1	Parameters and options used to configure and tune the SUT	/Clause1
Clause 2	Configuration scripts and Run Report	/Clause2
Clause 3	System configuration details	/Clause3