



Telecommunications Technology Association

Super Micro Computer, Inc.

TPC Express Benchmark™ IoT Full Disclosure Report

Machbase 8.0.50

running on

**Supermicro 1U A+ CloudDC
SuperServer AS -1116CS-TN**

(with 7x Supermicro 1U A+ CloudDC SuperServer AS -1116CS-TN Nodes)

with

Red Hat Enterprise Linux Server Release 9.5

TPCx-IoT Version
Report Edition
Report Submitted

2.1.2
First
Edition
Dec 23, 2025

First Edition – November 2025

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Abstract

TTA conducted the TPC Express Benchmark™ IoT (TPCx-IoT) on the 7x Supermicro 1U A+ CloudDC SuperServer AS -1116CS-TN Nodes. The software used included Machbase 8.0.50. 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 2.1.2.

The benchmark results are summarized below.

Configuration Summary



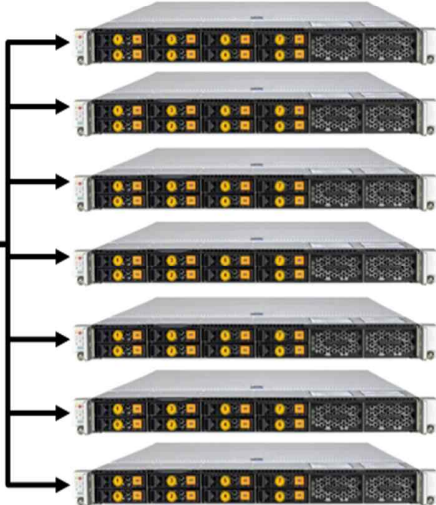
| Sponsor | Cluster Nodes | Storage Software | Operating System |
|-------------------|--|------------------|---|
| TTA SuperMicro | Supermicro 1U A+ CloudDC SuperServer AS -1116CS-TN | Machbase 8.0.50 | Red Hat Enterprise Linux Release 9.5 |


TPC Express Benchmark™ IoT Metrics


| Total System Cost (USD) | IoTps | USD/kIoTps | Availability Date |
|-------------------------|---------------|------------|-------------------|
| \$512,156.45 | 16,969,032.54 | \$30.18 | Oct 10, 2024 |


Executive Summary

The [Executive Summary](#) follows on the next several pages.

| | | | | |
|--|---|--|-------------------|---------------------------|
|  | | Machbase 8.0.50 | | TPCx-IoT 2.1.2 |
| | | | | TPC Pricing 2.9.0 |
| | | | | Report Date Dec. 23, 2025 |
| Total System Cost | | TPCx-IoT Performance Metric | | Price/Performance |
| \$512,156.45 USD | | 16,969,032.54 IoTps | | \$30.18 USD/kIoTps |
| Servers | Operating System | Other Software | Availability Date | |
| Supermicro 1U A+ CloudDC SuperServer AS -1116CS-TN | Red Hat Enterprise Linux Server Release 9.5 | None | Oct 10, 2024 | |
| System Under Test Configuration Overview | | | | |
| <div><div><p>NVIDIA SN3700 200GbE Ethernet Switch (32 x QSFP56 Ports)</p></div><div><p>7 x Supermicro 1U A+ CloudDC SuperServer AS -1116CS-TN</p><ul style="list-style-type: none">1 x AMD EPYC 9965 192-Core Processor12 x 64GB (768GB) Memory1 x 400GbE 2-Port Adaptor1GbE 2-Port Adaptor1 x 480GB NVMe SSD8 x 3.84TB NVMe SSD</div></div> | | | | |
| Total Servers: | | 7x Supermicro 1U A+ CloudDC SuperServer AS -1116CS-TN | | |
| Total Processors/Cores/Threads: | | 7/1344/2688 | | |
| Server Configuration: | | Master & Data Nodes | | |
| Processor | | 1x AMD EPYC 9965 (2.25GHz, 192-core, 384 MB L3) | | |
| Memory | | 1x 768 GB | | |
| Storage Device | | 1x 480GB M.2 NVMe SSD | | |
| | | 8x 3.84TB U.3 NVMe SSD | | |
| Network Controller | | 1x Mellanox MT2910 Family Dual-Port 400GbE | | |
| | | 1x Intel Corporation I350 Dual-Port 1GbE | | |
| Connectivity | | NVIDIA SN3700 200GbE Switch | | |
| Total Rack Units: | | (7x AS-1116CS-TN) + (1x SN3700) = (7x1) + (1x1) = 8 RU | | |

|  | | <h1>Machbase 8.0.50</h1> | | | TPCx-IoT 2.1.2 | |
|---|-------------------------------|--------------------------|---|-----|---------------------------|--------------------------|
| | | | | | TPC Pricing 2.9.0 | |
| | | | | | Report Date Nov. 13, 2025 | |
| Description | Part Number | Source | List Price (USD) | Qty | Extended Price (USD) | 3 yr. Maint. Price (USD) |
| Server Hardware | | | | | | |
| Supernmicro A+ Server 2014TP-HTR | AS-1116CS-TN-OTO-24 | 1 | 24500.20 | 7 | 171,501.40 | |
| AMD EPYC Turin 9965 192-Core Processor | PSE-TUR9965-0976 | 1 | | | | |
| 64GB DDR5-6400 ECC RDIMM | MEM-DR564MC-ER64 | 1 | | | | |
| 3.8TB 2.5" NVMe PCIe4 SSD, 1DWPD, TLC, SED | HDS-25N4-003T8-E1-TXD-SED-007 | 1 | | | | |
| 480GB M.2 NVMe PCIe4 SSD, 1DWPD, TLC | HDS-M2N4-480G0-E1-TXD-NON-080 | 1 | | | | |
| AIOM Gen2.1 x4 2x 1GbE RJ45 Intel i350-AM2 NIC | AOC-AG-I2M-P | 1 | | | | |
| ConnectX-7 NDR 400G IB/EN OSFP Gen5x16 NIC (No Crypto) | AOC-CX766003N-SQ0 | 1 | | | | |
| 1U 1000W CRPS Titanium redundant power supply | PWS-1K04A-1R | 1 | | | | |
| 1U 4-slot NVMe/SAS/SATA backplane for X13 Hyper | BPN-NVME5-HS119N-S4R | 1 | | | | |
| Include Maintenance - 7x24x4 Care Pack (3-yrs) | EWCS | 1 | | | | |
| Sub-Total | | | | | 171,501.40 | |
| Network Hardware | | | | | | |
| Mellanox Spectrum-2 Switch, 32xQSFP56/2xAC PSU/x86 CPU | MSN3700-VS2F | 2 | 24,348.00 | 1 | 24,348.00 | |
| ENT BUS CRITICAL SUP SERVICES 4HRMA AR + 4HR ON-SITE CE SN3700 3 YEARS | 780-C3744Z+P2CMI36 | 2 | 17,644.48 | 1 | | 17,644.48 |
| Mellanox Ethernet Cable, 100GbE QSFP28/1m/Passive Copper | MCP1600-C001E30N | 2 | 98.00 | 9 | 882.00 | |
| Sub-Total | | | | | 25,230.00 | 17,644.48 |
| Software | | | | | | |
| Red Hat Enterprise Linux Server with Premium Support 1 Year | RH00003 | 3 | 1,428.90 | 21 | | 30,006.90 |
| Machbase v8.0.50 Cluster Edition (includes 1y 7x24x4 Technical Support) (1 Set = 7 Node) | - | 4 | 238,000 | 1 | 238,000.00 | |
| Machbase v8.0.50 Cluster Edition 7x24x4 Technical Support (1 Set = 7 Node) | - | 4 | 35,700 | 2 | | 71,400.00 |
| Sub-Total | | | | | 238,000.00 | 101,406.90 |
| Infrastructure | | | | | | |
| ViewSonic 21.5 Inch 16:9 Monitors | VSPF2150 | 5 | 64.99 | 3 | 194.97 | |
| Multi-Device Keyboard and Mouse Combo | KYB-MUS-196CB | 1 | 12.90 | 3 | 38.70 | |
| Sub-Total | | | | | 233.67 | - |
| Discounts* | | | | | | |
| Machbase v8.0.50 Cluster Edition (includes 1y 7x24x4 Technical Support) (1 Set = 7 Node) | - | | | | (32,200.00) | |
| Machbase v8.0.50 Cluster Edition 7x24x4 Technical Support (1 Set = 7 Node) | - | | | | | (9,660.00) |
| Sub-Total | | | | | (32,200.00) | (9,600.00) |
| Total | | | | | \$402,765.07 USD | \$109,391.38 USD |
| Price Source 1) Super Micro Computer Inc. 2) NVIDIA Inc. 3) RedHat Inc. 4) Machbase Inc. 5) ViewSonic Inc. Audited by Pre-Publication Board *All discounts are based on US list prices and for similar quantities and configurations. Discounts for similarly sized configurations will be similar to those quoted here, but may vary based on the components in the configuration. | | | Three-Year Cost of Ownership: \$512,156.45 USD | | | |
| | | | IoTps: 16,969,032.54 | | | |
| | | | USD/kIoTps: \$30.18 USD | | | |
| 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. | | | | | | |

| | | |
|---|--------------------------|--|
|  | <h1>Machbase 8.0.50</h1> | TPCx-IoT 2.1.2 TPC Pricing 2.9.0 Report Date Dec. 23, 2025 |
| <h2>Numerical Quantities</h2> | | |
| Scale Factor | 33,000,000,000 | |
| <h3>Performance Run (Run1)</h3> | | |
| Warmup Run Start Time | 2025-11-12 13:33:58.000 | |
| Warmup Run End Time | 2025-11-12 14:16:35.000 | |
| Warmup Run Elapsed Time | 2,069.385 | |
| Measured Run Start Time | 2025-11-12 14:16:36.000 | |
| Measured Run End Time | 2025-11-12 14:49:36.000 | |
| Measured Run Elapsed Time | 1,944.719 | |
| Performance Metric (IoTps) | 16,969,032.54 | |
| <h3>Repeatability Run (Run2)</h3> | | |
| Warmup Run Start Time | 2025-11-12 14:50:47.000 | |
| Warmup Run End Time | 2025-11-12 15:28:22.000 | |
| Warmup Run Elapsed Time | 2,240.408 | |
| Measured Run Start Time | 2025-11-12 15:28:23.000 | |
| Measured Run End Time | 2025-11-12 16:04:09.000 | |
| Measured Run Elapsed Time | 1,915.284 | |
| Performance Metric (IoTps) | 17,229,820.74 | |

| | | |
|---|------------------------|--|
|  | Machbase 8.0.50 | TPCx-IoT 2.1.2 TPC Pricing 2.9.0 Report Date Dec. 23, 2025 |
| <p>Performance Run Report (Run1)</p> <p>=====</p> <p>TPCx-IoT Performance Metric (IoTps) Report</p> <p>Test Run1 details : Total Time For Warmup Run In Seconds = 2,069.385</p> <p>Test Run1 details : Total Time In Seconds = 1,944.719</p> <p> Total Number of Records = 33,000,000,000</p> <p>TPCx-IoT Performance Metric (IoTps): 16,969,032.54</p> <p>=====</p> <p>Repeatability Run Report (Run2)</p> <p>=====</p> <p>TPCx-IoT Performance Metric (IoTps) Report</p> <p>Test Run2 details : Total Time For Warmup Run In Seconds = 2,240.408</p> <p>Test Run2 details : Total Time In Seconds = 1,915.284</p> <p> Total Number of Records = 33,000,000,000</p> <p>TPCx-IoT Performance Metric (IoTps): 17,229,820.74</p> <p>=====</p> <p>Summary details of the run reports are show above. For the complete run reports, see the Supporting Files Archive.</p> | | |


|  | <h1>Machbase 8.0.50</h1> | TPCx-IoT 2.1.2 TPC Pricing 2.9.0 Report Date Dec. 23, 2025 | | | | | | |
|---|--------------------------|--|------|---------|-------------|--------------|-------|---------------------|
| <div>Revision History</div> <table><thead><tr><th>Date</th><th>Edition</th><th>Description</th></tr></thead><tbody><tr><td>Nov 13, 2025</td><td>First</td><td>Initial Publication</td></tr></tbody></table> | | | Date | Edition | Description | Nov 13, 2025 | First | Initial Publication |
| Date | Edition | Description | | | | | | |
| Nov 13, 2025 | First | Initial Publication | | | | | | |

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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. Redistribution 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 Telecommunications Technology Association and Super Micro Computer Inc..

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 and options 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.

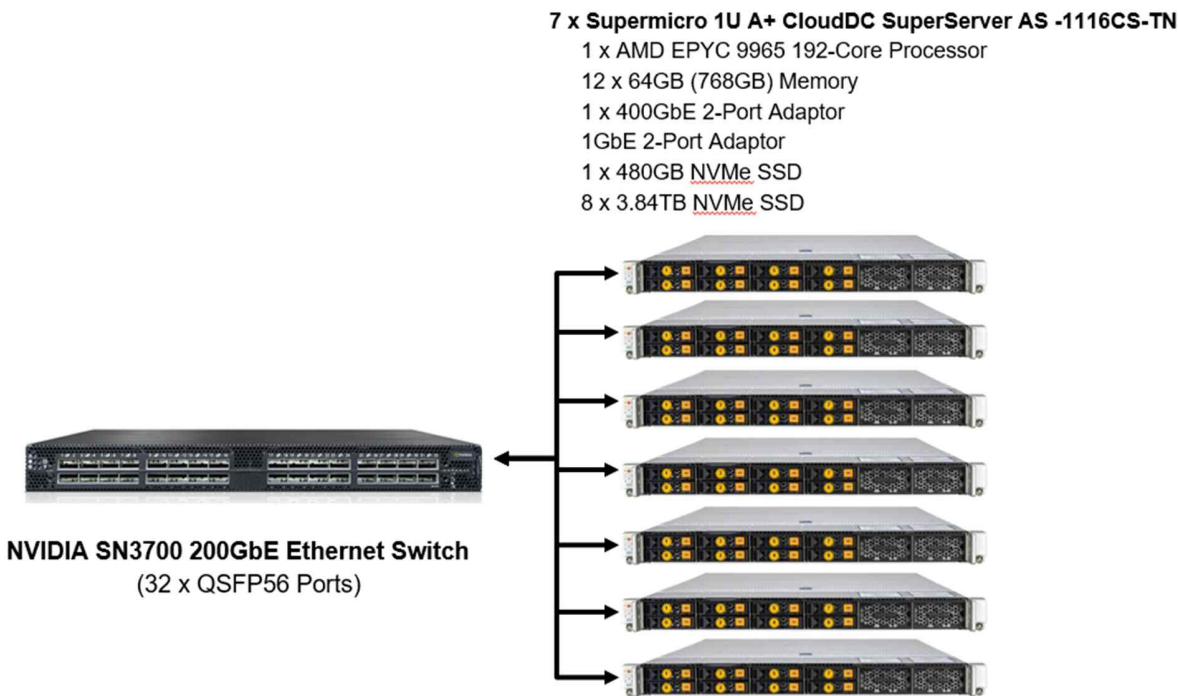


Figure 1-1 Measured Configuration

The measured configuration consisted of:

| | |
|----------------------------------|--|
| Total Nodes: | 7 |
| Total Processors/Cores/Threads: | 7/1344/2688 |
| Total Memory: | 5,376GB |
| Total Number of Storage Devices: | 63 |
| Total Storage Capacity | 218.32TB |
| Connectivity: | NVIDIA SN3700 200GbE Switch |
| Servers | Master & Data Nodes |
| Processors/Cores/Threads: | 1/192/384 |
| Processor Model: | 1x AMD EPYC 9965(2.25GHz, 192-core, 384MB L3) |
| Memory: | 1x 768GB |
| Storage Devices: | 1x 480GB M.2 NVMe SDD 8x 3.84TB U.3 NVMe SSD |
| Network Controller: | 1x Mellanox MT2910 Family Dual-Port 400GbE 1x Intel Corporation I350 Dual-Port 1GbE |

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 |
|--------|--------------------------------|---|--|
| 1-2 | M.2 PCIe Gen4 U.3 PCIe Gen5 | 1 x 480GB NVMe SSD 8 x 3.84TB NVMe SSD | Broker, Coordinator, Warehouse, Operating System, Root, Swap |
| 3-7 | M.2 PCIe Gen4 U.3 PCIe Gen5 | 1 x 480GB NVMe SSD 8 x 3.84TB NVMe SSD | Broker, Warehouse, Operating System, Root, Swap |

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 | Broker | Coordinator | Warehouse |
|--------|--------|-------------|-----------|
| 1 | X | X | X |
| 2 | X | X | X |
| 3 | X | | X |
| 4 | X | | X |
| 5 | X | | X |
| 6 | X | | X |
| 7 | X | | X |

Table 1-2 Software Component Distribution Across Nodes

The storage system software used was Machbase 8.0.50.

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 all configuration scripts.

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 (Repeatability Run)

=====

TPCx-IoT Performance Metric (IoTps) Report

Test Run 1 details : Total Time For Warmup Run In Seconds = 2,069.385

Test Run 1 details : Total Time In Seconds = 1,944.719

Total Number of Records = 33,000,000,000

TPCx-IoT Performance Metric (IoTps): 16,969,032.54

=====

Run Report for Run 2 (Performance Run)

=====

TPCx-IoT Performance Metric (IoTps) Report

Test Run 2 details : Total Time For Warmup Run In Seconds = 2,240.408

Test Run 2 details : Total Time In Seconds = 1,915.284

Total Number of Records = 33,000,000,000

TPCx-IoT Performance Metric (IoTps): 17,229,820.74

=====

2.3 Benchmark Kit Identification

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

| | |
|----------------------|-------|
| TPCx-IoT Kit Version | 2.1.2 |
|----------------------|-------|

| File | MD5 |
|--|----------------------------------|
| TPC-IoT-master.sh | cc24620cfdee08290d771c5471a8d1ee |
| tpcx-iot/machbase-binding/lib/core-0.13.0-SNAPSHOT.jar | d2416ef0a8b6834d9e0193e83745a752 |
| IoT_cluster_validate_suite.sh | 5c83d960058c3dd8e289a111c95b58ba |

2.4 Benchmark Kit Changes

No modifications were made to 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 | 33,000,000,000 | 33,000,000,000 |
| Measured Run Time (seconds) | 1,944.719 | 1,915.284 |
| IoTps | 16,969,032.54 | 17,229,820.74 |

Run2 Price-Performance: 30.18 \$/kIoTps

Third-Party Price Quotes

Super Micro Computer Inc.



980 Rock Ave.
San Jose, CA 95131
US

Phone: (408) 503-8000 Fax: (408) 503-8008

Please email PO to Supermicro Order Desk: epo@supermicro.com and
cc Supermicro Sales Representative.

Quotation

| | |
|------------------|----------|
| Date | Page |
| 11/19/2025 | 1 |
| Quotation Number | |
| 8601415190 | |
| Expiration Date | Currency |
| 12/19/2025 | USD |

Sold To:

ADVANCED MICRO DEVICES, INC (CA)
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USA

Ship To:

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SANTA CLARA CA 95054-3002
USA

| | | | | | |
|-----------|--------------|--------------|-----------|-----------------|-------------|
| Reference | Customer No. | Salesperson | Incoterms | Ship Via | Terms |
| | AM00360U00 | VIVIAN HUYEN | Ex Works | FED GROUND CUST | NET 45 DAYS |

| Qty. Ord. | Item Number | Description | Unit Price | PC | Extended Price |
|--------------|----------------------|---|------------|----|----------------|
| 7 | AS -1116CS-TN-OTO-24 | OPTIMIZED H14 1U CloudDC with DC-MHS,H14SHM + CSE-MD101 AS -1116CS-TN(x7)H14 1U CloudDC with DC-MHS,H14SHM + CSE-MD101 8471.49.9000 / 5A992C EWCSC(x7)0% 3 YRS LABOR 3 YRS PARTS, 1 YR CRS UNDER LIMITED WRNTY PSE-TUR9965-0976(x7)Turin 9965 DP/UP 192C/384T 2.25G 384MB 500W SP5 HF,RoHS 8542.31.0000 / 5A992C MEM-DR564MC-ER54(x84)64GB DDR5-6400 2RX4 (16Gb) ECC RDIMM 8473.30.1000 / EA999 HDS-25N4-003T8-E1-TXD-SED-007(x56)SSD 2.5" NVMe PCIe4 3.8TB 1DWPD TLC D, SED/TCG 7mm 8523.51.1100 / 5A992C HDS-M2N4-480G0-E1-TXD-NON-080(x7)SSD M.2 NVMe PCIe4 480GB 1DWPD TLC D, 80mm 8523.51.1100 / 5A992C AOC-AG-I2M-P(x7)AIOM G2.1 x4 2x 1GbE RJ45 Intel i350-AM2,RoHS | 24,500.20 | | 171,501.40 |

Comments:

* Quotation is for reference purposes only and will not be legally binding on either party. Quotations, in any format, furnished by Supermicro shall not constitute a firm offer and may be changed or revoked at any time due to tariff fluctuations, regulatory changes, or order of any government bodies of any country beyond the control of Supermicro. It will be solely in Supermicro's discretion to accept or reject the order you place.
* Information enclosed in the quotation, including pricing, components description, etc., made or supplied by Supermicro shall remain Supermicro's property and you hereby agree that such information is confidential and shall not be disclosed or otherwise used without Supermicro's express prior written consent.
* Unless otherwise, you as the customer, duly execute another valid agreement applicable to this purchase with Supermicro, or unless the authorized supermicro representative specifies, in writing, different or additional terms for specific product or service, the terms and conditions available at <http://www.supermicro.com/about/policies/pro> shall govern purchases made hereunder.
* This quotation is valid for 7 days from the issuance date. We reserve the right to rectify any typographical errors or omissions at our discretion.

11/18/2025 17:06:30, DET



980 Rock Ave.
San Jose, CA 95131
US
Phone: (408) 503-8000 Fax: (408) 503-8008
Please email PO to Supernicro Order Desk: epo@supernicro.com and
cc: Supernicro Sales Representative.

Quotation

| | |
|------------------|----------|
| Date | Page |
| 11/19/2025 | 2 |
| Quotation Number | |
| 8601415190 | |
| Expiration Date | Currency |
| 12/19/2025 | USD |

Sold To:

ADVANCED MICRO DEVICES, INC (CA)
2485 AUGUSTINE DRIVE
SANTA CLARA CA 95054-3002
USA

Ship To:

ADVANCED MICRO DEVICES, INC (CA)
2485 AUGUSTINE DRIVE
SANTA CLARA CA 95054-3002
USA

| | | | | | |
|-----------|--------------|--------------|-----------|-----------------|-------------|
| Reference | Customer No. | Salesperson | Incoterms | Ship Via | Terms |
| | AM00360U00 | VIVIAN HUYEN | Ex Works | FED GROUND CUST | NET 45 DAYS |

| Qty. Ord. | Item Number | Description | Unit Price | PC | Extended Price |
|--------------|-------------|--|------------|----|----------------|
| | | 8517.62.4300 / 5A992C AOC-CX766003N-SQ0(x7)900-9X766-003N-SQ0 1xNDR400G IB/EN OSFP Gen5x16 NoCrypto CX7 8517.62.4300 / 5A992C PWS-1K04A-1R(x14)1U CRPS Redundant 1000W Titanium (185X73.5X40mm) 8504.40.9000 / EAR99 BPN-NVME5-HS119N-S4R(x7)1U 4-slot backplane, 4x SAS3/SATA3/NVME5 X13 Hyper-S,HF, 8473.30.1000 / EAR99 CBL-MCIO-1226M5(x7)MCIO (x8 STR to x8 STR),26CM,85OHM,RoHS 8544.42.9900 / EAR99 CBL-MCIO-1245M5RE(x7)MCIO x8 (STR to RE),45cm,85OHM,RoHS 8544.42.9900 / EAR99 CBL-MCIO-1330M5(x14)MCIO (x8 to x8), STR, 30cm,G5,32AWG, RoHS,RoHS 8544.42.9900 / EAR99 CBL-MCIO-1339M5R(x7)MCIO x8 (STR to RA),39CM,32AWG,RoHS | | | |

Comments:

* Quotation is for reference purposes only and will not be legally binding on either party. Quotations, in any format, furnished by Supernicro shall not constitute a firm offer and may be changed or revoked at any time due to tariff fluctuations, regulatory changes, or order of any government bodies of any country beyond the control of Supernicro. It will be solely in Supernicro's discretion to accept or reject the order you place.
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* Unless otherwise, you as the customer, duly execute another valid agreement applicable to this purchase with Supernicro, or unless the authorized supernicro representative specifies, in writing, different or additional terms for specific product or service, the terms and conditions available at <http://www.supernicro.com/about/policies/#pro> shall govern purchases made hereunder.
* This quotation is valid for 7 days from the issuance date. We reserve the right to rectify any typographical errors or omissions at our discretion.

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980 Rock Ave.

San Jose, CA 95131

US

Phone: (408) 503-8000 Fax: (408) 503-8008

Please email PO to Supernicro Order Desk: epo@supernicro.com and

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Quotation

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| Date | Page |
| 11/19/2025 | 3 |
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| 8601415190 | |
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Sold To:

ADVANCED MICRO DEVICES, INC (CA)
2485 AUGUSTINE DRIVE
SANTA CLARA CA 95054-3002
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| | | | | | |
|-----------|--------------|--------------|-----------|-----------------|-------------|
| Reference | Customer No. | Salesperson | Incoterms | Ship Via | Terms |
| | AM00360U00 | VIVIAN HUYEN | Ex Works | FED GROUND CUST | NET 45 DAYS |

| Qty. Ord. | Item Number | Description | Unit Price | PC | Extended Price |
|--------------|-------------|---|------------|----|----------------|
| | | 8544.42.9900 / EAR99 | | | |
| | | CBL-MCIO-1340M5-1(x7)MCIO x8 (STR to STR), semi-flat, 40cm,32AWG,RoHS | | | |
| | | 8544.42.9900 / EAR99 | | | |
| | | CBL-PWEX-1136-70(x7)MicroHi (2x2F to 2x4F), PH3.0, 70cm, 10A/p,16#,RoHS | | | |
| | | 8544.42.9900 / EAR99 | | | |
| | | FAN-0216L4-2(x14)40x40x56 mm, 31K-26.6K RPM, Counter-rotating Fan, Non-hot-sw | | | |
| | | 8414.59.1000 / EAR99 | | | |
| | | MCP-220-00178-0B(x28)2.5" thin profile drive tray, Orange tab (for hotswap NVMe d | | | |
| | | 8473.30.9000 / EAR99 | | | |
| | | MCP-310-10111-0B(x7)Mylar air shroud set for CSE-MD101 H14SHM CPU and M.2 board, | | | |
| | | 8473.30.9000 / EAR99 | | | |
| | | SNK-P2082PV-2(x7)1U Passive EVAC CPU Heat Sink for SP5 Turin in AS -1126CS-TN | | | |
| | | 8473.30.9000 / EAR99 | | | |
| | | CBL-NSKS-1240K5-E(x7)M-PIC, KickStart 50p to 50p,40cm,G5,30AWG,RoHS | | | |
| | | 8544.42.9900 / EAR99 | | | |

Comments:

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* Information enclosed in the quotation, including pricing, components description...etc., made or supplied by Supernicro shall remain Supernicro's property and you hereby agree that such information is confidential and shall not be disclosed or otherwise used without Supernicro's express prior written consent.

* Unless otherwise, you as the customer, duly execute another valid agreement applicable to this purchase with Supernicro, or unless the authorized supernicro representative specifies, in writing, different or additional terms for specific product or service, the terms and conditions available at <http://www.supernicro.com/about/policies/#pro> shall govern purchases made hereunder.

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980 Rock Ave.
San Jose, CA 95131
US

Phone: (408) 503-8000 Fax: (408) 503-8008

Please email PO to Supernano Order Desk: epo@supernano.com and
cc Supernano Sales Representative.

Quotation

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| Date | Page |
| 11/19/2025 | 4 |
| Quotation Number | |
| 8601415190 | |
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|-----------|--------------|--------------|-----------|-----------------|-------------|
| Reference | Customer No. | Salesperson | Incoterms | Ship Via | Terms |
| | AM00360U00 | VIVIAN HUYEN | Ex Works | FED GROUND CUST | NET 45 DAYS |

| Qty. Ord. | Item Number | Description | Unit Price | PC | Extended Price |
|--------------|-------------|--|------------|----|----------------|
| | | AOM-DCM2-BOOT-P(x7)DC-MHS M.2 Boot Board,2x 22110/2280 M.2 slots (M-key),P 8517.62.4300 / EAR99 MC0037(x7)ASSEMBLY FEE OSNBD3(x7)3 YR ONSITE NBD SERVICE | | | |

| | | |
|-----------|-----------------|------------|
| Comments: | Less | |
| | Order Discount | |
| | Subtotal | 171,501.40 |
| | Total sales tax | 15,649.50 |
| | Total order | 187,150.90 |

* Quotation is for reference purposes only and will not be legally binding on either party. Quotations, in any format, furnished by Supernano shall not constitute a firm offer and may be changed or revoked at any time due to tariff fluctuations, regulatory changes, or order of any government bodies of any country beyond the control of Supernano. It will be solely in Supernano's discretion to accept or reject the order you place.


* Information enclosed in the quotation, including pricing, components description,...etc., made or supplied by Supernano shall remain Supernano's property and you hereby agree that such information is confidential and shall not be disclosed or otherwise used without Supernano's express prior written consent.

* Unless otherwise, you as the customer, duly execute another valid agreement applicable to this purchase with Supernano, or unless the authorized supernano representative specifies, in writing, different or additional terms for specific product or service, the terms and conditions available at



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| Item | Price | Qty | Subtotal |
|--|---------------|-----|---------------|
|  MSN3700-VS2F, Mellanox Spectrum-2 Switch, 32xQSFP56/2xAC PSU/x86 CPU | US\$24,348.00 | 1 | US\$24,348.00 |

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Summary

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Order TotalUS\$24,348.00

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| Item | Price | Qty | Subtotal |
|--|-----------|-----|-----------|
|  MCP1600-C001E30N, Mellanox Ethernet Cable, 100GbE QSFP28/1m/Passive Copper | US\$98.00 | 1 | US\$98.00 |

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Summary

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SubtotalUS\$98.00

Order TotalUS\$98.00

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▼ Menu

Apparel Hardware Housewares Services Software Other Help







🛒 (\$17,644.48)

Categories ▼

- Apparel
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- Services
- Software
- Specials
- Best Sellers
- Uncategorized
- Find Items ▼**
- Search
- By Category
- By Manufacturer
- Support ▼**
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- F.A.Q.
- Returns/Exchanges
- Contact BLT
- E-mail
- About us
- Return Policy
- FAX Order Form

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Availability and More Info:
Click an item's BLT Item # to view availability. For product information, click the item's description.

| BLT Item # <small>(click for stock)</small> | Description <small>(click for item details)</small> | Mfg. Number | Weight (lbs.) | Price | Quantity | Item Total |
|---|--|------------------------|------------------|-------------|---|--------------------|
| B10NN12  | ENT BUS CRITICAL SUP SERVICES 4HRMAAR + 4HR ON-SI TE CE SN3700 3 YEARS No Returns Or Exchanges.  Delivered by email usually within 10 business days. | 780- C3744Z+P2CMI36 | 1.00 | \$17,644.48 | 1   | \$17,644.48 |
| Sub Total: | | | | | | \$17,644.48 |
| <div>Country: United States ▼</div> <div>Shipping: E-mail = \$0.00 ▼</div> <div>E-mail Delivery:</div> | | | | | | \$0.00 |
| <div>Update (Delivered by e-mail within 10 business days  More </div> | | | | | | Total: \$17,644.48 |

Sales tax for these states will be added when you check out: CT and HI.

Secure Check Out

Continue Shopping

- Adjust item quantities if needed (enter zero to remove), then press Update.
- Change the Country and Shipping selections above as necessary, then press Update.

Machbase Inc.

Quotation

| | | | | | | |
|--|---|-------------------------|---|--------------------------|-----------------------|---------------------|
| Doc. No. | MACH-SALES-20251119-01 | Business License | 120-87-96403 | | | |
| Date | 2025-11-19 | Company | Machbase Inc. | CEO | Andrew Kim | |
| To | TTA | Business Territory | Service, Business Service | ProductType | Software | |
| CC | Mr. Seo Byong Jaon | Address | 501, ACE Techno Tower 8th, 11 Digital-ro 33-gil, Guro-gu, Seoul, Korea | | | |
| Charge | Grey Shim (+82-10-9910-8086) | | | | | |
| Here we quote as follows | | Tel. | T : 02-2038-4606 | F : 02-2038-4607 | | |
| Quote | 294,294 | USD (VAT Incl.) | | | | |
| No. | Content | List Price (USD/Set) | Proposed Price (USD/Set) | Quantity (1Set=7Node) | Supply Price (USD) | Tax. Incl. (USD) |
| 1 | Machbase Cluster Edition V8.0.50 Machbase Run-Time License Machbase Time Series DBMS Machbase Client Development Kit Machbase Coordinator Machbase Broker Machbase Warehouse Machbase Web Admin Machbase Tag Analyzer | 238,000 | 205,800 | 1 | 205,800 | 226,380 |
| No. | Content | Ref. Price (USD) | Maintenance Rate (%) | Total Period (Year) | Supply Price (USD) | Tax. Incl. (USD) |
| 2 | Maintenance Support & On-site Guide Fault Handling API Connection Guide for Server & Node Configuration | 205,800 | 15% | 2.00 | 61,740 | 67,914 |
| Total | | | | | 267,540 | 294,294 |
| << REMARK >> | | | | | | |
| .- Here is a quote for applying a Machbase time series database for TTA. | | | | | | |
| .- Quotation : Machbase Cluster Edition Run-Time License 7 nodes(1set) and 3 years Maintenance (1 Year for free) | | | | | | |
| .- Maintenance: Free maintenance for one year after the contract, 15% of maintenance rate applied afterwards. | | | | | | |
| .- Payment terms: Cash payment terms. (Within 30 days of issue of tax invoice) | | | | | | |
| .- Server installation condition: It is recommended to separate DB server and Storage server. | | | | | | |
| .- Installation : Cluster Edition - 7 Days, DB Table Guide is separately guided with DB Professional Service. | | | | | | |
| .- Quotation validity period: 120 days from the date of quotation | | | | | | |
| MACHBASE | | | | | | |

RedHat Inc.



Shopping Cart

Order summary

| Item | Quantity | Price | Line total |
|--|---------------------------|--------------|---------------|
| New Subscription Contract | | | |
| Red Hat Enterprise Linux Server, Premium (Physical or Virtual Nodes) (RH00003) | 21 Remove | US\$1,428.90 | US\$30,006.90 |
| Nov 30, 2025 - Nov 30, 2026 | | | |

Subtotal: US\$30,006.90

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ViewSonic

21.5" PRIVACY FILTER

21.5"

Availability: In Stock

VSPF2150

★★★★★ 1 Review

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Qty

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Industry standard 60-degree viewing angles

Anti-glare, anti-reflective surface

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| 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 |