# Success Stories

Ella Taran, Marketing

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ellaT@supermicro.com

# Success Stories by

**Markets & Customized Per Industry Use Case**

1. Accelerated Computing

2. Cloud & IT Infrastructure & Services

3. Industrial & Enterprise

4. 5G & Edge & IoT

5. Customized Per Use Case

(Education, Medical…)

# Supermicro Total IT Solutions Success Stories - Markets

**SUPERMICRO®**

| Green Computing | Accelerated Computing | Cloud & IT Infrastructure & Services | Industrial & Enterprise | 5G & Edge & IoT |
|---|---|---|---|---|
| **GleSYS** | **NEC** | **atlantic.net** | **AtoS** | **COTAS** |

## Customized Per Use Case

- MTA SZTAKI — Hungarian Academy of Sciences Institute for Computer Science and Control
- 大阪大学 OSAKA UNIVERSITY
- HelpMeSee
- NET PROTECT
- UNC Universidad Nacional de Córdoba

### Accelerated Computing
- CERN
- Lawrence Livermore National Laboratory

### Cloud & IT Infrastructure & Services
- INMOTION
- phoenixNAP GLOBAL IT SERVICES
- seeweb THINK CLOUD
- Elio
- VEXXHOST

### Industrial & Enterprise
- BR PETROBRAS
- Preferred Networks

### 5G & Edge & IoT
- NITRADO

# Accelerated Computing

1. Accelerated Computing

2. Cloud & IT Infrastructure & Services

3. Industrial & Enterprise

4. 5G & Edge & IoT

5. Customized Per Use Case

(Education, Medical…)

# Accelerated Computing – Pain Points

## How Supermicro Designs & Solves Pain Points of Accelerated Computing and AI Markets

| | | |
|---|---|---|
| Scalability | Customizable | • Modular building blocks for any workloads; compute performance & density and storage<br>• Rack Scale Plug-and-Play to deliver complete, tested, validated solutions<br>• Supports open industry standards |
| Power Consumption | Energy Efficient | • Airflow optimized up to 40°C – enhanced thermal designs to support the CPUs and GPUs<br>• Rack-Scale Liquid Cooling solutions<br>• In-house design of Titanium level power supply to maximum efficiency |
| Complexity | User Friendly | • Modular building blocks. Rack-Scale design includes networking, cooling, and cloud solutions<br>• Vertically integrated; designs, develops, and manufactures server and storage systems<br>• Management software to improve overall rack scale efficiency |
| Reliability | Reliable | • Improved security and manageability<br>• Comprehensive remote management software<br>• Rack-Level testing |
| Security | Secured | • Industry standard compliance for hardware and silicon Root of Trust (RoT) and cryptographical attestation of components throughout the entire supply chain<br>• Secure Boot, firmware protection, hardware-level encryption<br>• Self-Encrypting Drives (SEDs), Secure Erase, Network Segmentation |

# Accelerated Computing

- Customer: NEC
- Global integrator of information technology, network solutions, electronics, and biometric solutions
- First in NIST – Computer vision. Employees: 109K, Market Cap: $9.22B
- Country: Japan

## Challenge

- 1st in Computer Vision (NIST) National Institute of Standards & Technology – face and iris recognition

- Training time too long - up to 355 years

- Vendor must be industry leader & innovator & support next gen GPU

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# Accelerated Computing

**NEC**

Reduced training time of NLP (Natural Language Processing) model from years to hours

## Benefits

- Reduced training time of NLP (Natural Language Processing) model from years to hours

- Distributed Deep Learning environment for research

## Solution

Over 116 Supermicro GPU & Ultra Servers SYS-420GP-TNAR

Features:

- Two Intel Xeon Platinum 8358 processors

- 32 core, 2.6 GHz

- 8 NVIDIA A100 80GB GPUs

- 1TB, 1.9TB NVMe SSD & 4 7.6TB NVMe SSD

- Interconnect - 5 NVIDIA ConnectX-6

- Single NVIDIA ConnectX-6 dual-port interface

SYS-120U-TNR

SYS-420GP-TNAR

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# Accelerated Computing



- Customer: CERN
- The European Organization for Nuclear Research, leads physics research, using particle accelerators
- Research organization that operates the largest particle physics laboratory in the world
- Country: Switzerland. (HQ: Geneva)

## Challenge

- Optimize data processing from the Large Hadron Collider (LHC)
- Need to reduce simulation times
- Expand research



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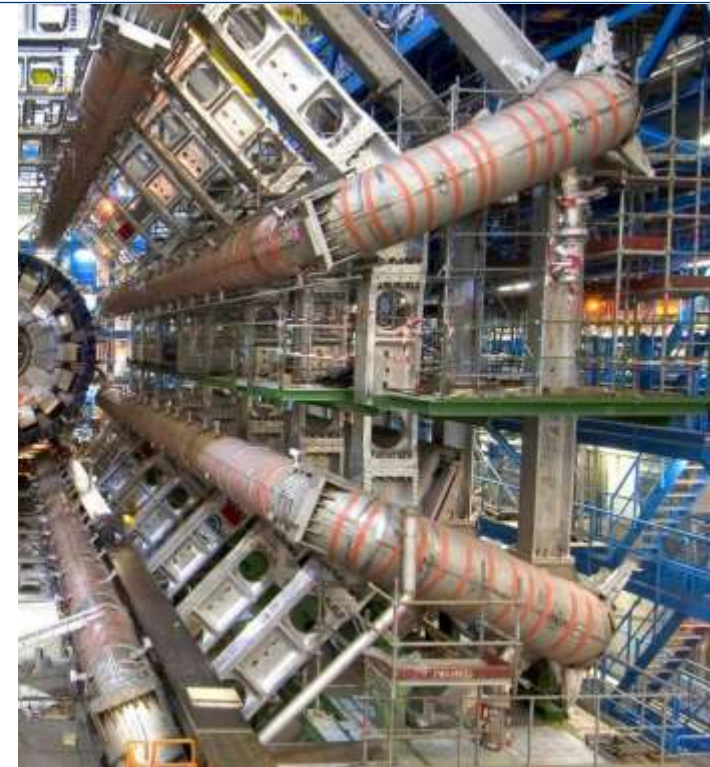
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# Accelerated Computing

Faster, more complex simulations and power usage was lower than expected

CERN acquired over 900 Supermicro BigTwin systems, each with four nodes

## Benefits

- Power usage was lower than expected
- Reduced TCO
- Shared cooling & power systems

## Solution

Supermicro BigTwin

Features:

- 450,000 processor cores run 24/7
- Over 90% of the resources for computing in the Data Centre are provided through a private cloud based on OpenStack

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# Green Accelerated Computing

**GleSYS**

- Customer: GleSYS
- European leader in Cloud & IT Infrastructure as a Service. Operates three data centers
- Offers cloud services, energy-efficient co-location services & innovative cooling technologies
- Country: Sweden

## Challenge

- Increase performance
- Green certified energy only
- Upgrade existing Intel Xeon servers
- Reduce environmental impact of adding HPC



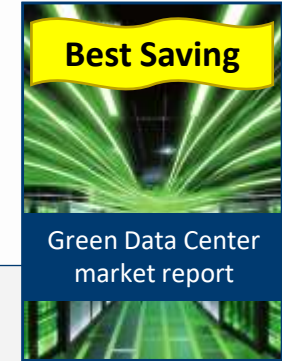Environmental Sustainability (glesys.com)

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# Green Accelerated Computing

**GleSYS**

- Solution: Transform surplus energy (Hot Water) for public heating, homes, swimming pools
- Best Saver compare to Global Green Data Centers

Best Saving

Green Data Center market report

## Benefits

## Solution

- Highest savings for district electricity compared to Green DC
- Lower PUE for GleSYS Data Centers (lower energy usage per unit of work)
- Faster time to completion of applications

**Supermicro WIO & Supermicro Twin**

- Supermicro SuperServer SYS-1029P-WTRT
- Use liquid cooling

**Features:**

- CPUs 2x Intel Xeon 6226R Memory 768GB Storage 2x240GB SSD boot, 2x 6.4TB NVME data / VMs Network 4 x 25Gbps SFP28

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# Accelerated Computing



- Customer: Lawrence Livermore National Laboratory
- Federal research facility that conducts research and development in national security, energy, and science
- Using high-performance computing, data analytics, simulation
- Country: California, United States

## Challenge

- Urgency to find treatment for COVID-19 using HPC

- Interested in upgrading existing Corona Cluster

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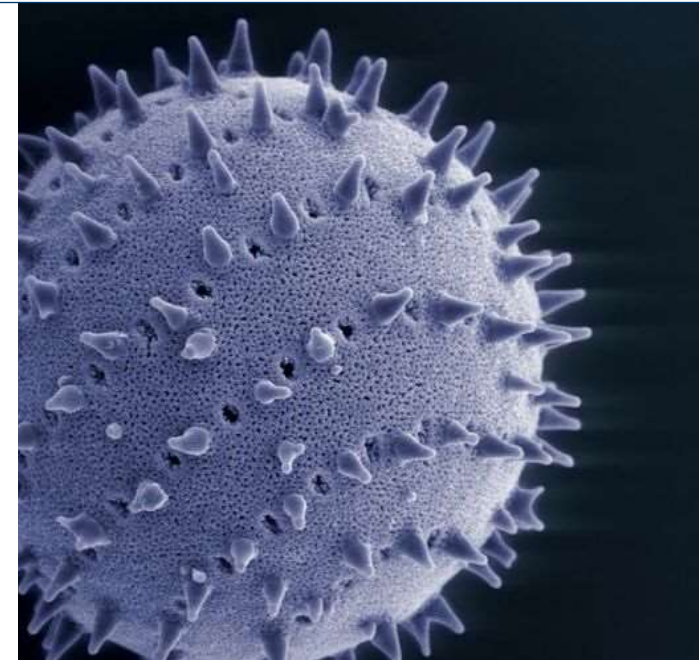
# Accelerated Computing

Reduce simulation time from 7 hours to 40 minutes. System is active and available for Covid researchers globally today that require HPC & GPU for their Covid research

## Benefits

- Fast deployment - subscribed in minutes

- System is active and available for global researchers

- Developed tracking prediction tool of COVID-19 virus spread

## Solution

Supermicro A+ Server 4124GS-TNR

### Features:

- 160 PCIe lanes
- 8 GPUs
- Flexible architecture
- AIOM support

### Applications:

- HPC for COVID-19
- COVID-19 Detection
- Medical Countermeasures for COVID-19
- COVID-19 Data Portals

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# Cloud & IT Infrastructure & Services

1. Accelerated Computing

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5. Customized Per Use Case

(Education, Medical…)

# Cloud & IT Infrastructure & Services – Pain Points

| How Supermicro Designs & Solves Pain Points of Cloud & IT Infrastructure & Services Markets | | |
|---|---|---|
| Power Efficiency Consumption & Cooling | Energy Efficient | • Performance Optimized – enhanced thermal capacity to support CPUs and GPUs. Designed for optimal airflow at up to 40°C<br>• Rack-Scale liquid cooling solutions<br>• In-house design of Titanium Level power to maximum efficiency |
| High TCO | Low TCO & Higher ROI | • Supermicro is a vertically integrated company; designs, develops, manufactures server, storage, networking, virtualization and cloud solutions<br>• High-density server options, scalable storage solutions and<br>• Management software to improve overall efficiency |
| Scalability | User Friendly | • User friendly modular systems allows easier maintenance<br>• Hot-swap components (storage, power supply, fans etc)<br>• Front accessible nodes (FT/GT), front accessible drives (BT/Hyper/CloudDC) |
| Flexibility | Customizable Solution | • Modular building blocks per use case; compute density, storage density or mix<br>• Rack Scale plug-and-play service to deliver complete, validated solutions<br>• Supports Open Industry Standards |
| Security & Compliance | Secured | • Improved Security and Manageability<br>• Industry standard compliance for hardware and silicon Root of Trust (RoT) and cryptographical attestation of components throughout the entire supply chain<br>• Comprehensive remote management software |

Elio  aTLanTic.neT  phoenixNAP GLOBAL IT SERVICES  seeweb THINK CLOUD  INMOTION  VEXXHOST

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# Cloud & IT Infrastructure & Services



- Customer: Atlantic.net
- Solution: Cloud Hosting and VSP Service Provider. 9 state of the art data centers
- Provides colocation, cloud computing, dedicated servers and VSP, and MSSP
- Country: United States (HQ: Orlando, Florida)

## Challenge

- Scalability & meet increasing customer demand, with mixed workload use cases:
    - Cloud Computing
    - HIPPA compliant & PCI hosting
    - Dedicated hosting VPS hosting
    - Internet service & hosting service
- Needed a server solution to complement the open-source architecture



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# Cloud & IT Infrastructure & Services


**atlantic.net**

- Supermicro Optimized Performance per watt per dollar
- Supermicro exceeded all HPC & Memory performance requirements

**Benefits**

Solution: MicroBlade Servers

**intel**

- Broad Range of Solutions
- Lower Energy Usage
- Server & Storage Solution

**SuperStorage®**

Top-loading Server Optimized for Field Serviceability and Field Replacement

**BigTwin®**

Highly Modular Multi-Node Systems with Tool-less Design

**Ultra and Ultra-E**

High Performance & Flexibility Rackmount Systems for Enterprise Applications

**Cloud DC**

All-in-one Rackmount Platforms for Cloud Data Centers

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# Cloud & IT Infrastructure & Services

- Customer: INMOTION
- Industry: Trusted leader in web hosting solutions, private cloud & Infrastructure as a Service (IaaS)
- Builds & deploys small clouds on OpenStack. Product: Flex Metal Cloud IaaS
- Country: USA (HQ: Virginia Beach, VA )

## Challenge

- Providing a secure, cost-efficient private cloud for customers
- Inefficient use of compute and storage resources
- Rising data center costs and competitive pressures
- Improve scaling for multitenancy
- High barrier to entry for OpenStack adoption
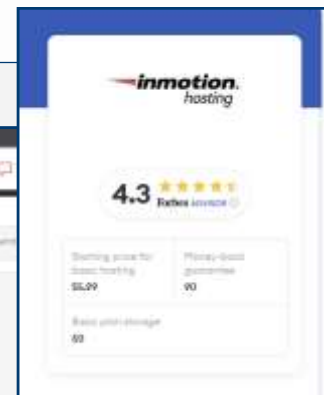
InMotion Hosting and Supermicro Success Story. A small footprint, cost-efficient on-demand OpenStack Private Cloud. | InMotion Hosting

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# Cloud & IT Infrastructure & Services

**SUPERMICRO**

**INMOTION**

"Automating deployments of OpenStack & Ceph* private clouds in under an hour at a low-cost entry point was a huge challenge. Supermicro actively engaged to bring this vision to market."

Todd Robinson, President and Co-Founder of InMotion Hosting

## Benefits

- Lower total cost of ownership of server hardware

- Improved power efficiency, cooling performance, and physical server density

- Maximize data center utilization

- Best performance per Watt

## Solution

**MicroBlade Servers**

**Features:**

- 3U 28-node or 6U 56-node all-in-one blade architecture

- MBI-6219BT41N MicroBlade

- MBI6219M-2N MicroBlade



MBE-628E-822          MBI-6219B-T41N

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# Cloud & IT Infrastructure & Services

- Customer: VEXXHOST

- Industry: Big Data. Offers IT organizations the ability to build and run their demanding cloud applications

- Offers private cloud (on-premises) or in a public cloud

- Country: Canada (HQ: Montreal, Quebec)

## Challenge

- Provide scalable compute services

- Maintain performance SLAs with customers

- Reduce costs for customers and power costs



CANADA'S VEXXHOST: CLOUD HOSTING AND CONSULTING SERVICES POWERED BY OPEN-SOURCE TECHNOLOGY

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# Cloud & IT Infrastructure & Services

With MicroBlade servers VEXXHOST enabling its customers to expand their workloads seamlessly on-premises, colocation, or their cloud. Increased HPC allows for more work done faster and to host more Virtual Machines (VMs)

## Benefits

- Faster Application Performance
- Wider Range of Services to Offer

## Solution

Solution: Supermicro A+ Servers

& 2nd Gen AMD EPYC Processors

- AS –1123US-TR4
- AS –2113S-WN24RT
- Supermicro A+ Management Nodes

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# Cloud & IT Infrastructure & Services

- Customer: PhoenixNAP

- Solution: Global IT services provider offering Security-focused cloud IT solutions

- Offers dedicated servers, colocation, and Infrastructure-as-a-Service (IaaS) solutions

- Country: United States (HQ: Orlando, Florida)

## Challenge

- Meet strong SLA's HPC requirements including maximum levels of security & compliance per user needs

- Provide customized, fully scalable compute & storage

- Performance per watt per dollar is critical

- Continuously improve operation efficiency globally



**phoenixNAP Named as a Representative Vendor in 2021 Gartner® Market Guide for Disaster Recovery as a Service**

phoenixNAP recognized in 2021 Gartner Market Guide for Disaster Recovery as a Service for a second year in a row

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# Cloud & IT Infrastructure & Services

Solution: Maximized ROI –  Twice storage capacity & IOPS in the same space

## Benefits

- Increased performance, 1.5 to 1.6X and 40% gain in VM density

- Improved flexibility and user experience with rack scale design

- Minimizes failure rates & improve the overall reliability and resiliency of architecture.

## Solution

Supermicro BigTwin™ SuperServer

Features:

- 2U 4-node

- Dual Intel Xeon sockets per node

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# Cloud & IT Infrastructure & Services

- Customer: Seeweb
- Industry: Cloud provider for hosting, co-location
- Offers custom cloud offering and new "streaming-as-a-service"
- Country: Italy

## Challenge

- AI Training System at an Affordable Price
- Fast System Response
- Powerful GPU Systems



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# Cloud & IT Infrastructure & Services

"GPU density of the Supermicro systems provides the required performance, flexibility, and lower energy consumption that helps Seeweb to design the new Cloud Server GPU service with the right market fit" *Antonio Baldassarra, CEO at Seeweb*

## Benefits

- Faster and More Complete AI Workloads
- Low Cost and can be easily replicate

## Solution

Supermicro SYS-420GP-TNR

Features:

- Dual 3rd Gen Intel® Xeon® Scalable Processors
- Up to 10X NVIDIA QUADRO RTX 6000
- NVIDIA QUADRO RTX-A6000

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# Cloud & IT Infrastructure & Services



- Customer: ElioVP

- Industry: Cloud customized Blockchain management

- Blockchain Expert. offers customers a solutions for customer's data center/colocation facility

- Country: Belgium

## Challenge

- Meet increasing customer demand

- Provide servers and storage optimized for

  Blockchain workloads



Speeding Up Machines & Accelerating People

TRY TO REIMAGINE HIGH PERFORMANCE COMPUTING
NOW OPEN YOUR EYES. YOU'RE HERE

AMD    SUPERMICRO    DUKE|SOFT

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# Cloud & IT Infrastructure & Services

Solution: with Supermicro A+ Servers, Blockchain calculations ran up to 35 % faster than their previous generations of servers

## Benefits

- Faster and More Complex Simulations

- Lower Energy Usage

## Solution

### Supermicro A+ Servers

AS -1124US-TNRP - 4Servers Per System

- Dual AMD EPYC™ 7543 CPUs

- 2TB Memory/Node

AS -4124GS-TNR - 4 Servers Per System

- Dual AMD EPYC™ 7313 CPUs

- 2TB Memory/Node

- 8 GPUs/node

"Our relationship with Supermicro and AMD is extraordinary. We are extremely pleased with the responsiveness of both companies whenever an issue arises. The servers' performance is amazing, which increases our business, and reduces costs. By working with Supermicro, we can get new generations of servers with AMD technology earlier in our development cycle, enabling us to bring our products to market faster."
*Elio Van Puyvelde, CEO of Eliovp*

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**Industrial & Enterprise**

1. Accelerated Computing

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4. 5G & Edge & IoT

5. Customized Per Use Case

(Education, Medical…)

# Industrial & Enterprise - Pain Points

## How Supermicro Designed & Solves Pain Points of Industrial & Enterprise Markets

| | | |
|---|---|---|
| High TCO<br>Total Cost of Ownership | User Friendly | • Cost-effective HPC solutions with high-performance processors and high-density storage<br>• Energy efficiency solutions reduces cost<br>• Optimized to space limitations required HPC |
| Complex Integration & Management | Plug-n-Play Rack level solution. | • Comprehensive support and services for installation, configuration, and ongoing maintenance and support<br>• Customized solutions tailored to specific customer needs |
| Limited Scalability and Flexibility | User Friendly | • Scalable HPC systems with the ability to add new compute nodes, storage and interconnects as needed |
| Data Management & Security | Reliability | • High-performance storage and data transfer solutions, and data security and compliance solutions |
| Standardization & Interoperability | Secured | • HPC products based on industry standards and a wide range of software and libraries<br>• Help organizations easily integrate their systems with other technologies and switch between different vendors |

Preferred Networks          Atos          BR PETROBRAS

ALL

# Industrial & Enterprise

- Customer: PETROBRAS
- Industry: Oil & Gas Exploration, Production
- One of the largest oil & gas companies globally, the <u>largest in Brazil</u> Employees: 80K, Market Cap: $65B
- Country: Brazil (HQ: Rio de Janeiro)

## Challenge

- The cost of drilling in the wrong location is extremely high
- Petrobras' HPC apps for Oil Exploration & real-time monitoring, overseeing hundreds of active wells
- Need to improved processing times to optimize algorithms for Oil Exploration
- Required CPU & GPU

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# Industrial & Enterprise

**DRAGÃO: Large cluster of over 250 servers, Ranked #33 on the Top 500 list of fastest HPC**

## Benefits

- Atos, integration partner won the bid to upgrade Petrobras HPC with new CPU & GPU

- Cluster consists of over 188,000 cores and is ranked #55 on Top 500 list

## Solution

Supermicro SuperServer 4029GPTVRT

Features

- Dual Intel® Xeon® Scalable Processors

- 8 GPUs from NVIDIA Corporation.

- 768GB of memory

- InfiniBand EDR

- 100Gb/s

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TOP 500
The List.

# Industrial & Enterprise



- Customer: Preferred Networks (PFN)
- Industry: Deep Learning, Robotics, solves complex DL & ML. PFN is a leading innovator
- Strives to solve complex problems that require deep learning, robotics
- Country: Japan

## Challenge

- Losing business & needed urgently to speed up DL training
  - Failed to meet SLA with customers, specific DL failed to solve
  - Used across variety of domains & use cases, computer vision
- Energy cost concerns and performance concerns. Power-efficient designs is critical/ OPEX of (power & cooling) exceed the budget



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# Industrial & Enterprise

- Supermicro and Preferred Networks (PFN) developed the most efficient supercomputer
- MN-3 cluster won the #1 position on the Green500 list

## Benefits

- Designed an ASIC optimized for DL & processor, fast, energy efficient and housed in a 7U
- Ideal for housing multiple GPUs, accelerators, interconnects

## Solution

Supermicro GPU server (X11DPG-OT-CPU motherboard)

- Custom design; images saved into SSD, before processing and training
- Total of 2080 cores



The GREEN 500 CERTIFICATE

MN-3 - MN-Core Server, Xeon 8260M 24C 2.4GHz, MN-Core, RoCEv2/MN-Core DirectConnect

Preferred Networks, Japan

is ranked

No. 1 in the Green500

among the World's TOP500 Supercomputers
with 21.11 GFlops/Watt Linpack Power-Efficiency
on the Green500 List published at ISC 2020 Digital Conference, June 22nd, 2020.

Congratulations from the Green500 Editors

Wu-chun Feng
Virginia Tech

Kirk Cameron
Virginia Tech

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**5G & Edge & IoT**

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5. Customized Per Use Case

(Education, Medical…)

# 5G & Edge & IoT - Pain Points

| How Supermicro Designs & Solves 5G, Edge and IoT Market Pain Points | | |
|---|---|---|
| Complex Deployment | Plug-n-Play Rack level solution | • Supermicro offers a variety of pre-configured, high-performance edge computing solutions<br>• Easy deployment in a range of environments.<br>Designed to simplify deployment, reduce resources and time to get up and running. |
| Security | Secured | • Supermicro's products include advanced security features such as hardware-based encryption, secure boot, and secure firmware management<br>• Protect data transmitted over 5G networks, IoT devices, and edge computing infrastructure. |
| Interoperability | Customizable | • Supermicro's products are designed to be interoperable with a wide range of third-party solutions and technologies, which can help to ensure that 5G networks, IoT devices, and edge computing infrastructure can work together seamlessly. |
| Scalability | User Friendly | • Supermicro's products are designed to be highly scalable, which allows them to handle the growing demand for IoT devices and data. These products also support virtualization, which can help to optimize the use of resources and improve scalability. |
| Latency & Throughput trade-off | Customized per workloads | • Supermicro's products are designed to deliver high performance, low latency and high throughput, they also support network acceleration technologies such as NVMe-oF, RDMA and others to optimize the performance of the network. |
| | **COTAS** | **NITRADO** |

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# 5G & Edge & IoT

**COTAS**

- Customer: COTAS
- Largest Bolivian Telecommunications provider
- The biggest provider of the best telephony, internet and television service in the Bolivian market
- Country: Bolivia (HQ: Santa Cruz de la Sierra)

## Challenge

- COTAS is Bolivian largest telecommunication firm

  Offers television, internet, telephony, surveillance cameras, alarms, an

  monitoring service

- "Reached capacity limits in data center; realized the current 300 serve

  architecture is NOT sustainable in the long run"

- Need HPC, with improved capacity & efficiency

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# 5G & Edge & IoT

**COTAS**

- Supermicro Optimized Performance per watt per dollar
- Supermicro exceeded all HPC and memory performance requirements

## Benefits

- FatTwin servers designed to be compact and modular, thanks to shared redundant power chassis

- Reduce time for set up prototypes

- Supermicro Blade servers in COTAS' data center delivers 5G services to over 120,000 subscribers

## Solution

SuperBlade®

FatTwin®

"We are spread out over several locations and we need smooth ethernet connections among our data centers. Supermicro simplifies our network topology while increasing network resiliency and scalability,"
*German Galarza, Director of Engineering, COTAS*

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# 5G & Edge & IoT

- Customer: NITRADO

- Industry: Hosting provider for game development. DDoS-protected and low latency server hosting platform

- NITRADO's administers game servers & hosted applications dynamically & automatically

- Country: Germany (HQ: Karlsruhe)

## Challenge

- Managing the game's logic with extremely low latency is a primary concern for high end games that involve simulations

- Demand increased and Server footprints were growing

- Nitrado needed to get more work performed per watt of electricity

- Upgrade Intel Xeon to to maintain SLAs with end-customers

- Critical to keep costs low for compute & storage infrastructure

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# 5G & Edge & IoT

- Supermicro delivered servers with latest technology faster than competition
- Supermicro's robust early ship program
- Supermicro's competitive pricing on systems that included

## Benefits

- Reduced footprint as more data can be held in memory in a single server
- Increased number of sessions concurrently

## Solution

Supermicro BigTwin® Servers

Features:

- 3rd Gen Intel Xeon Scalable processors
- Intel® Optane™ Pmem
- Intel® P4610 NVMe Storage

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# Customized by Industry Use Case

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(Education, Medical…)

# Scientific Research



- Customer: The Universidad Nacional de Córdoba (UNC)
- Industry: Largest Scientific Research. UNC is conducting leading edge research
- Use HPC in astronomy, chemistry, biotechnology, social sciences, statistics, physics, and engineering
- Country: Argentina

## Challenge

- Simulations were taking too long to complete
- Applications required the entire cluster to complete, forcing out other simulations



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# Scientific Research



- Serafin cluster built by Supermicro delivers 5X the performance of the previous HPC cluster
- Applications ran from 2X to 5X faster than previously
- Simulations that took 24 hours - now deliver results in 4- 5 hours

## Benefits

- Faster completion of HPC simulations
- Larger scalability to reduce simulation time
- More researchers can use the cluster concurrently

Cluster Serafín | CCAD-UNC

## Solution

**AMD**

Supermicro A+ BigTwin

Features:

- 4 nodes per chassis
- AMD EPYC™ 7532 CPUs
- 32 cores each 2.4 GHz
- 128GB RAM
- 1.92TB SSD of NVMe M.2



Supermicro AS-2124BT-HTR

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# Academic Research

- Customer: The Institute for Computer Science and Control (SZTAKI)
- Industry: Premier research organization
- SZTAKI coordinates the Artificial Intelligence National Laboratory of Hungary & AI research consortium
- Country: Hungary

## Challenge

- Use the latest GPUs available
- Allow for more research
- Reduce time for algorithms to run

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# Academic Research



- Increased pace of research and compared to previous system

- Algorithms run approximately 20X faster on several tasks

## Benefits

- Faster application performance

- Wider range of research areas to investigate

## Solution



Supermicro A+ 4124GO-NRT

Features:

- 2 x 2nd Gen AMD EPYC™ CPUs 7F72 3.2 GHz

- 1 TB RAM

- GPU-NVTHGX-A100-SXM4-8

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# Academic Research

- Customer: Osaka University

- Industry: 90-year-old world-renowned university

- Known for leading-edge research in a wide range of disciplines

- Country: Japan

## Challenge

- Faster processing and reduced time to solution

- Respond quick for new application requests

- Ability to take advantage of new CPU instructions

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# Academic Research



Osaka University, NEC Corporation and Supermicro partnered to design new system that exceeded the expectations of the system architects and early users

## Benefits

- Faster simulations
- AI workloads with the latest GPUs and PCI-E 4.0
- Workload matching

## Solution

Supermicro A+ GPU Server

- Supermicro SuperBlade
- Supermicro GPU systems
- 3rd Gen Intel® Xeon® Scalable Processors
- 8 GPU NVIDIA NVlink

SuperBlade with DLC

GPU System with DLC
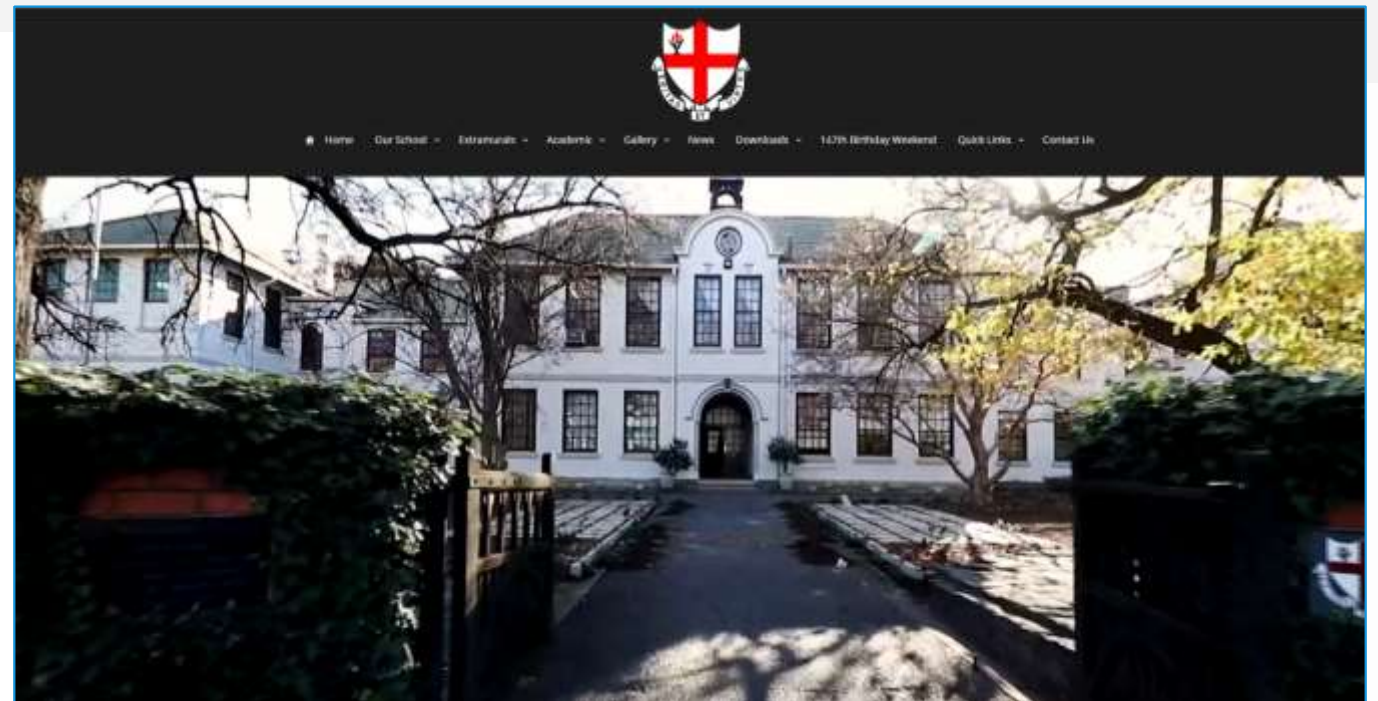
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# Education

- Customer: Queenstown Educational Foundation (QEF)
- Industry: Nonprofit organization - network of diverse schools of excellence
- Academics - focus on 4th industrial revolution
- Country: South Africa

## Challenge

- Protect students from cyberattacks
- Encourage collaboration

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# Education

"We are very pleased with our new firewall server from Supermicro. With this new technology, we can offer our students a safe environment to do their work and able to encourage collaborative projects between different schools."

## Benefits

- More secure educational environment
- Project and file collaboration between students and facilities

## Solution

Supermicro A+ Server

Features:

- 2 nd Gen AMD EPYC™ processor
- 128 GB RAM
- 4x 10Gbps Ethernet Network Controllers

Supermicro A+ AS -1014S-WTRT

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# Non-Profit / Medical



- Customer: HelpMeSee
- Industry: nonprofit - mission to address cataract blindness with 4th industrial revolution
- HelpMeSee is training thousands of cataract surgeons to perform eye surgeries
- Country: United States (HQ: New York)

## Challenge

- Ophthalmologists spend months/years in training eye surgeries
- Needed a simulator for remote surgery practice
- HPC & GPU & Haptic Feedback System required for simulating eye anatomy & virtual surgical instruments )
- Needed a low-cost simulator for global deployment
- HPC



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# Non-Profit / Medical

**HelpMeSee**

- Traditional eye surgery training takes months, and Simulator training only six days

- Student achieve proficiency & safer patient experience well before operating on a patient

## Benefits

- Eliminating cataract blindness by training many ophthalmologists

- Reduced training time

- Accurate models of the human eye

## Solution

- HelpMeSee Eye Surgery Simulator, located in training sites worldwide.

- Accurately models the human eye and required virtual surgical instruments used in MSICS (Manual Small Incision Cataract Surgery)

Supermicro motherboard, model C9Z390-CG incorporates:

- Intel(R) Core I9 processor

- NVIDIA RTX2080TI

- Up to 64GB Unbuffered non-ECC UDIMM

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# Internet Security



- Customer: NetProtect

- Industry: Internet Cyber Security, form the edge to the data center

- NetProtect delivers secure, open access to files, websites, software, and media through a secure VPN

- Country: United States. (HQ: New York)

## Challenge

- Reduce costs

- Maintain customer SLAs (Service Level Agreement)

- Ensure future growth at minimal cost

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# Internet Security

**NET PROTECT**

The most important benefit is the core performance, leading to considerably higher bandwidth on a relative basis. NetProtect reduces infrastructure costs by 60%

## Benefits

AMD

- Reduced datacenter footprint by 54%
- Support 65% more traffic on 15% fewer cores. Overall, a 75% increase in performance on a relative basis
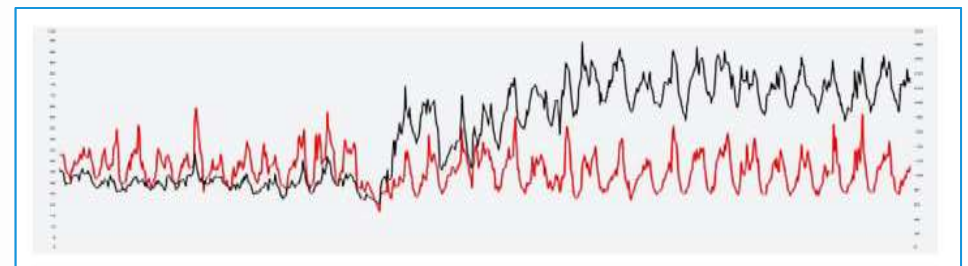- Allowing more VMs per CPU

## Solution

Supermicro's A+ Ultra servers (A+ Server 1023US-TR4)

- Two AMD EPYC 7352 CPUs (24 cores each)
- Total of 256 GB of DDR4 memory
- Two 1.92 TB NVMe storage
- Each system provides
- Dual 25 Gigabit network

Increase in sessions with no increase in CPU utilization



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# Thank You



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