2023
PRODUCT CATALOG

AUTONOMOUS TRUCKING
DEFENSE
INDUSTRIAL
COMMERCIAL AEROSPACE
MEDIA / ENTERTAINMENT

Performance without Compromise

OSS
ONE STOP SYSTEMS
At One Stop Systems, Inc. (OSS) we design and manufacture the highest performance AI Transportable edge computing platforms to survive some of the harshest environments. This includes ruggedized servers, compute accelerators, expansion systems, flash storage arrays, SAN, NAS, and data recording software for AI workflows. These products are used for AI data set capture, training, and large-scale inference in the defense, oil and gas, mining, autonomous vehicles, and rugged entertainment applications.

OSS utilizes the power of the latest PCI Express, GPUs, and NVMe storage to bring state of the art AI datacenter performance to the AI Transportable edge. If it moves and needs AI and/or autonomous capabilities, OSS has the solution. We address the entire AI workflow, from high-speed data acquisition to deep learning, training, and inference. OSS products are available directly or through global distributors. For more information, go to onestopsystems.com.
AI Transportables

Bringing high-performance computing technologies to the rugged edge.

AI Transportable devices enable organizations to deploy the latest HPC hardware into the field to provide maximum compute capacity for AI applications. Demanding environmental conditions and the need for real-time inferencing warrant the highest performing compute and storage solutions in rugged and reliable packages.

Agency Compliance

- UL, cUL
- DO-160
- MIL-STD-810G
- MIL-STD-461E
- MIL-STD-464A
- MIL-STD-704E

Environments

- Commercial Trucking
- Fixed Wing & Rotor Aircraft
- Drones
- Tactical Battlefield

Applications

- Large Scale AI Inferencing
- Data Collection and Sensor Aggregation
- Disaggregated Compute Architectures

Our Unique Value

- PCIe design expertise
- SWaP optimization
- Advanced thermal management
- CFD & FEA simulation
- Certification/compliance verification
- Customer interface for unique requirements
- Software development of system management
- Transportable power design
- Industry partnerships – key roadmaps
- Product lifecycle management

onestopsystems.com
AI Transportables for Military Theater
Accelerating mission-critical AI defense and intelligence applications at the rugged edge.

- Aircraft
  Surveillance, Hunters, Troops
- Mobile Command
  Battlefield, Drills
- Mobile Radar
  Land, Sea, Air

We condense the capabilities of large-scale data centers into compact, transportable, rugged systems that can transform vast amounts of data to actionable intelligence.

Datacenter in the Sky
- No compromise performance
- Air and liquid cooling options
- Modular power subsystems
- Specialized rugged form factors
- Edge optimized software stack
- Unified management and control

Deployed in 737 (P-8 for Navy)

Driving the Industry
- Highest performance
- Minimized weight
- Compact size
- Advanced thermal management
- Wide range power inputs
- Optimized vibration response

AI Transportables for Industrial Applications
AI applications for oil and gas, mining, construction, agriculture, life sciences and healthcare.

- Aviation
  Safety, Networking, Entertainment
- Autonomous Trucks
  Long Haul Trucking
- Medical
  Robotics, Laser
- Mining
  Autonomous Machinery
- Media & Entertainment
  Virtual, Streaming, Live Shows
- Oil & Gas
  Autonomous, Semi-Autonomous
- Agriculture
  Autonomous Machinery

Our products for industrial applications add tremendous compute power and flash storage capacity for high-performance edge computing.

- Drones
  Swarms, Wingman
- Submersibles
  Autonomous Submarines
- Watercraft
  Battlefield, Drills
- Aviation
  Surveillance, Hunters, Troops
- Mobile Command
  Battlefield, Drills
- Mobile Radar
  Land, Sea, Air
Autonomous Trucking

Rugged and reliable high-performance computers for autonomous trucking applications.

OSS provides environmentally optimized high-performance compute and storage solutions to the autonomous trucking industry. Autonomous trucks require specialization of AI capable computer equipment in terms of form factor, cooling and ruggedization to meet unique harsh environmental conditions.

Defense

Defence products deliver no-compromise AI performance in extreme edge environments.

Artificial Intelligence is rapidly becoming a core element of defense systems across all mission environments on land, in the air and on the sea. These applications require the highest possible performance, deployable in the harshest conditions. AI will be critical in coping with the huge data flows being acquired from sophisticated sensor networks and converting this to actionable intelligence in real time.

Our products function in harsh vibration and thermal environments, meeting strict size, weight, and power constraints.

AI Solutions for Land, Sea and Air

- **Land Solutions**
  - OSS brings the compute power of HPC to the unique environmental requirements of military AI applications.

- **Air Solutions**
  - Datacenters in the sky require the performance of land-based datacenters, but must function in harsh vibration and thermal environments while meeting the strict size, weight, and power constraints of the aircraft.

- **Sea Solutions**
  - AI capabilities are embedded in many shipboard defensive and offensive mission systems designed for rapid awareness and reaction to threats.

Artificial intelligence is important for the future of the trucking industry, as it helps to:

- Reduce cost per mile
- Solve driver shortages
- Improve global supply chain
- Increase safety
- Boost truck reliability
- Lower emissions

AI for the Future

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onestopystems.com
Industrial

Applications for oil and gas, mining, construction, agriculture, science, and healthcare.

As the need for AI data from edge sensors proliferates, large scale systems that access, sense, measure and control these data sources in bulk are required to keep up with the demand. PCIe expansion systems provide scalable speed and connectivity to thousands of instrumentation devices from a single data collection system.

Industrial AI Solutions

- **Oil and Gas Industry**
  Providing reduced model processing cycle times and sharper images of region-of-interest datasets.

- **Mining, Construction and Agriculture**
  Supplying the industry with transportable AI capabilities to make actionable decisions in the field.

- **Medical Industry**
  Bringing specialized, high-performance computing capabilities to the edge, to help deliver on the enormous potential of precision medicine.

Commercial Aerospace

Solutions for commercial aerospace systems.

- **Telemetry and Flight Safety**
  OSS airborne edge solutions and cloud infrastructure are combined to create enduring OEM solutions that support aircraft operations.

- **Inflight Entertainment**
  OSS provides system and component level specification, design, certification, and manufacturing support to the major OEMs in the IFE marketplace.

- **Cabin Systems**
  Cabin lighting, paging, audio distribution and seat power bring enhanced passenger services to legacy aircraft with reduced operational cost.

Media and Entertainment

Video editing, storage, rendering, color grading and more.

- **Set to Post**
  High capacity data transfer using hot swappable storage media provides efficient support of the Set to Post workflow.

- **Post Production**
  High-end GPU systems with large storage subsystems are required for near real-time manipulation of data files.

- **Live Event Special Effects**
  High performance compute and storage systems for high resolution real-time video streams.
System Level Products

Revolutionizing the capabilities and flexibility of scaleout AI systems.

Integrated Systems

High performance compute platforms for the rugged edge.

- Gen 4 3U SDS
- FSAn-4R
- 2U EOS
- Rigel
- Ion Accelerator
- GAS-R

PCIe Expansion Systems

Build AI on the Fly systems beyond the limits of a single server.

- Gen 5 4U Pro
- Gen 4 4U Pro
- Centauri
- Front I/O 4U Pro
- EB4400
- 4UV
Gen 4 3U SDS
OSS-SDS-3U-4A
OSS-SDS-3U-4A2
OSS-SDS-3U-4I2

Product Features
• Single or dual Intel Xeon or AMD Epyc processor(s)
• 20” maximum depth
• 8 or 16 SATA/NVMe SSDs
• OSS expansion compatibility
• System monitoring and control
• AC or DC input power supplies
• Resource expanded optimized BIOS

Mechanical Design
• Lightweight aluminum enclosure
• Retention bar for GPUs and other add-in cards
• Frame-in-frame design to mitigate low frequency harmonic responses
• Each hot-swap bulk removeable canister with 128TB of NVMe storage

Rigel Edge Supercomputer
OSS-ERX-R100

Product Features
• NVIDIA HGX A100 4-GPU SXM 320GB
• 4x PCIe 4.0 x16 expansion slots
• Lightweight, compact aluminum frame design
• 2.4TB/s total GPU aggregate bandwidth
• AMD EPYC 7003 processor

Mechanical Design
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Integrated System
OSS-FSAn-4R
Product Features
- 4U MIL-STD ruggedized system
- Supports high-density PCIe NVMe flash, up to 256 TB raw (200 TB usable)
- Four lightweight removable data canisters with capacities up to 50TB
- Each data canister weighs less than 6.5lbs
- Supports up to 5 million IOPS
- Provides up to 30 GB/second throughput
- Supports iSCSI, FC and SRP protocols

Integrated System
OSS-GAS-R
Product Features
- 8x NVIDIA® A100 SXM4 GPUs with 4.8TB/s aggregate NVIDIA® NVLink™ bandwidth
- Over 200TB PCIe Gen4 NVMe™ storage
- Four lightweight removable data canisters with capacities up to 50TB
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Integrated System
OSS-FSAn-2D
Product Features
- 2U rackmount design
- 24 2.5" hot-swap NVMe drive bays
- 1600W redundant power supplies
- System health monitoring
- Zero downtime, zero migration cost option
- HA option with mirrored array
- Ultra-low latency 5.1.0 software

Integrated System
OSS-EOS-2U-4A
Product Features
- AMD EPYC™ 7003 Series Processor
- Options for 7x add-in cards or 24x U.3 drives
- Up to six PCIe 4.0 x16 HH slots
- Dual 1+1 redundant universal input power supplies
- Resource expanded BIOS for large expansion capability
- Guaranteed to operate with all OSS® expansion products

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Rugged Design

The appliance supports up to 8 NVIDIA H100 PCIe GPUs, which deliver 2.5x FP64 performance compared to the NVIDIA H100, and four PCIe Gen 5 x16 HIB/NIC slots for up to 256GB/s of sustained data throughput. Alternatively, the 4U Pro can be configured to provide 16 single-width PCIe Gen 5 x8 slots for FPGA data ingest or the latest storage add-in cards.

Gen 5 4U Pro

OSS-PCIe5-4UP

The ideal expansion platform for the entire AI workflow at the edge

Product Features

• PCIe Gen 5 architecture
• Rugged frame design
• OSS developed U-BMC
• Dynamic fan speed control
• Configurable slot and host uplinks
• Integrated IPMI based system monitoring

Centauri

OSS-EXS-C48-00
OSS-EXS-C48-01

High-capacity storage in a compact chassis

Product Features

• Bulk removable 8-bay storage canister
• Up to 128 TB of NVMe storage per canister
• Same drive pack as found on 3U SDS servers
• Unique half-rack, short-depth form factor
• PCIe 4.0 x16 SFF-8644 host uplink
Gen 4 4U Pro
OSS-PCIe4-4UP

Product Features
• PCIe Gen 4 architecture
• Configurable slot and host uplinks to optimize throughput
• Rugged frame design
• Dynamic fan speed control
• Integrated IPMI based system monitoring
• AC and DC power inlet options

Front I/O 4U Pro
OSS-PCIe4-4UPF

Product Features
• Front I/O for space constrained rackmount applications
• Configurable slot and host uplinks to optimize throughput
• Dynamic fan speed control with front to rear air flow
• PCIe Gen 4 architecture
• Rugged frame design
• Integrated IPMI based system monitoring

EB4400
OSS-EB4400

Product Features
• PCIe Gen 4 architecture
• Small, rugged frame design
• Dynamic fan speed control
• Configurable slot and host uplinks
• Integrated IPMI based system monitoring
• AC and DC power inlet options

4UV
OSS-PCIe-4UV

Product Features
• PCIe Gen 4 or Gen 3 architecture
• 4U rackmount design
• Various slot configurations
• Various host connections
• 1m, 2m, 3m cable
• Fixed or variable speed fan options
• Two 2000W load-sharing power supplies
• AUX power connectors for high power AICs

Accelerating high-performance mission-critical applications

Configurable expansion for edge HPC/AI applications

Meets the needs of any compact AI application

Value-focused AI expansion platform
Component Level Products
Revolutionizing the capabilities and flexibility of scaleout AI systems.

Cable Adapters
Versatile boards with the fastest possible data transfer speeds.

Link Kits
Create a fast, local PCIe connection from a host computer.

Backplanes
Add up to twenty slots to a system with our PCIe backplanes.

PCIe Cables
Reliable, high performance in demanding environments.
Cable Adapters

GEN 5

PCIe x16 Gen5
OSS-PCIe5-HIB732-x16-H
OSS-PCIe5-HIB732x16-T
• Operates at PCIe Gen 5 speeds up to 32 GT/sec per lane
• Delivers 128 GB/sec (full duplex) bandwidth with x16 lanes
• No driver required

OSS’ cable adapters use custom-developed PCIe Gen 5 copper cables up to 2m in length, based on QSFP-DD cable/connector standards.

GEN 4

PCIe x16 Gen 4
OSS-PCIe-HIB616-x16
• Dual PCIe 4.0 NVMe M.2 slots
• Hot-swap removable drive carriers
• Operates at up to 64GB/s at PCIe 4.0 speeds

PCIe 4.0 Dual M.2 Carrier
OSS-PCIe4-ADPT-X16-M.2-2
• Dual PCIe 4.0 NVMe M.2 slots
• Hot-swap removable drive carrier
• Operates at up to 64GB/s at PCIe 4.0 speeds

PCIe 4.0 Quad M.2 Carrier
OSS-PCIe4-ADPT-X16-M.2-4
• Quad PCIe 4.0 NVMe M.2 slots
• Hot-swap removable drive carriers
• Operates up to 64GB/s at PCIe 4.0 speeds

GEN 3

PCIe x16 Gen3
OSS-PCIe-HIB838-x16
• Operates at up to 32GB/s at PCIe Gen 3 speeds
• Copper and Fiber cable options up to 100m
• No driver required

PCIe x8 Gen3 Quad Port
OSS-PCIe-HIB838-X8-QUAD
• Operates at up to 16GB/s at PCIe Gen 3 speeds
• Requires no additional software
• Operates in host or target mode

PCIe x16 Gen3 iPass
OSS-PCIe-HIB838-X16
• Operates at up to 32GB/s at PCIe Gen 3 speeds
• Requires no additional software
• Operates in host or target mode

PCIe x8 Gen3 Dual Port
OSS-PCIe-HIB838-X8-DUAL
• Operates at up to 16GB/s at PCIe Gen 3 speeds
• I/O expansion requires no additional software

Link Kits

PCIe x16 Gen 4 Host to Target Kit (61611)
OSS-KIT-EXP-61611-XM
• Operates at 64GB/s
• PCIe x16 host cable adapter with x16 switch-based target cable adapter
• Includes Gen 4, x4 SFF-8644 PCIe cables
• No backplane included

PCIe x8 Gen3 SFF-8644 Embedded
OSS-PCIe-HIB838-X16
• Operates at up to 64GB/s at PCIe Gen 3 speeds
• Versatile board installs in small space
• Supports any PCIe x1, x4, x8, x16 add-in card

Switch-based, PCIe x4 Gen3 Host
OSS-PCIe-HIB838-X4
• Small form factor fits in any host system
• PCIe x4 Gen 3 cable adapter with PCIe switch
• Supports SSC Isolation for maximum compatibility

PCIe x8 Gen3 iPass
OSS-PCIe-HIB838-X16
• Operates at up to 32GB/s at PCIe Gen 3 speeds
• Requires no additional software
• Operates in host or target mode

No backplane included
OSS offers a wide variety of backplanes with various slot bandwidths, perfect for embedding into systems to add PCIe slots.

**GEN 5**

8 PCIe x8 5.0 slots (581)
OSS-BP-581
- Eight downstream PCIe 5.0 x8 expansion slots
- One PCIe 5.0 x16 target slot
- 3x 8 pin +12v power input

5 PCIe x16 5.0 slots (580)
OSS-BP-580
- Five downstream PCIe 5.0 x16 expansion slots
- PCIe 5.0 x16 target slot
- 3x 8 pin +12v power input

**GEN 4**

5 PCIe x16 slots (538)
OSS-BP-538
- Five downstream PCIe 4.0 x16 expansion slots
- One PCIe 4.0 x16 target slot
- ATX power input

8 PCIe x8 slots (521)
OSS-BP-521
- Eight PCIe 4.0 x8 expansion slots
- One OSS PCIe 4.0 x16 target slot
- ATX power input

5 PCIe x16 slots (522)
OSS-BP-522
- Five downstream PCIe 4.0 x16 expansion slots
- One PCIe 4.0 x16 target slot
- ATX power input

**GEN 3**

8 PCIe x8 slots (452)
OSS-BP-452
- One OSS PCIe 3.0 x16 target slot
- Eight PCIe 3.0 x8 expansion slots
- ATX power input

8 PCIe x4 slots (416)
OSS-BP-416
- One OSS PCIe 3.0 x16 target slot
- Eight PCIe 3.0 x4 expansion slots
- ATX power input

5 PCIe x16 slots (457)
OSS-BP-457
- One OSS PCIe 3.0 x16 target slot
- Five PCIe 3.0 x16 expansion slots
- ATX power input

2 PCIe x8 slots (436)
OSS-BP-436
- One PCIe 3.0 x16 expansion slot
- Two PCIe 3.0 x4 and One PCIe 3.0 x8 expansion slots
- 12 VDC Input

1 PCIe x16 slots (427)
OSS-BP-427
- One PCIe 3.0 x16 target slot
- One PCIe 3.0 x16 expansion slot
- 12 VDC Input

1 PCIe x16 slots (412)
OSS-BP-412
- One PCIe 3.0 x16 target slot
- One PCIe 3.0 x16 expansion slot
- 12 VDC Input

2 PCIe x8 slots (419)
OSS-BP-419
- One PCIe 3.0 x16 target slot
- Two PCIe 3.0 x8 expansion slots
- 12 VDC Input

OSS offers a wide variety of backplanes with various slot bandwidths, perfect for embedding into systems to add PCIe slots.
**Custom OEM Design**

**Our range of OEM services include**
- System engineering, specification, detailed design and regulatory compliance (commercial, medical, aerospace, and military)

**One Stop Systems’ production services are:**
- Optimized for expedited build of short-run, high-spec, difficult to test items, and prototypes
- Integration with client supply-chain strategies (supplier-managed inventory, hot-spares, etc.)
- Competitively-priced with extraordinary quality (ISO 9001 / AS9100-D process)

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**GEN 5**

**Gen 5 Dual x8 Cables**
OSS-QSPPD5-CBL-C-XM
- 128GB/sec (full duplex) bandwidth with x16 lanes
- Copper cables, up to 3m length
- Enables disaggregated architectures

**Mini SAS x4 Cable**
OSS-MSAS-CBL-X4-C-XM
- Available in up to 3m lengths
- Mates to HIB6 family host interface boards
- Supports up to 16GB/s transfer rates

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**GEN 4**

**Gen 4 Mini-SAS x 4 Active Optic Cable**
OSS-mSAS4-ACT-CBL-x4-2M
- Standard 2m length
- OM3 active optical cable
- Mates to PCIe x16 Gen 3/4 host interface board
- Supports up to 16GB/s transfer rates

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**GEN 3**

**PCIe x8 Cable**
OSS-PCIE-CBL-X8-XM
- PCIe x8 cable
- PCI-SIG PCI Express Cable Specification Compliant
- Supports up to 16GB/s transfer rates

**Mini-SAS x4 Active Optical Cable**
OSS-MSAS-ACT-CBL-X4-XM
- Available in 5m up to 100m lengths
- Mates to HIB6i-x16 host interface board
- Supports PCIe Gen1 (2.5GT/s) and Gen2 (5.0GT/s)

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**Onestopsystems.com**