MODULAR COMPUTING SERVER

Enabling AI Applications
at the Edge

ST Engineering

EMPOWERING MOBILE PLATFORMS WITH
ADVANCED COMPUTING

Artificial Intelligence (AI), Internet of Things (IoT) and other cloud-enabled applications have become increasingly prevalent in today's connected mission-critical environment. These high-performance technologies and applications require massive processing power and connectivity, relying heavily on seamless and well-integrated systems and components.

Powerful and scalable, the Modular Computing Server (MCS) is designed to enable AI, cloud computing and other high-performing applications at the tactical edge, bringing advanced computing capabilities to mobile platforms.

The MCS is a modular and scalable system-in-a-box server that allows users to insert a myriad of modules capable of undertaking computing, networking and video-processing functions for enhanced operations. The chassis and adaptation of Virtual Path Cross-Connect (VPX) open standards allow for the inclusion of a wide selection of Commercial-Off-The-Shelf (COTS) modules for cost optimisation, and is engineered to incorporate new capabilities as required.

The MCS is ruggedised to Military Standard (MIL-STD) and is SWaP-C (Size, Weight, Power and Cost) optimised, allowing it to be used in vehicles with limited space.

- **System-in-a-box server** comes with 11 module slots that allow for the addition or removal of modules, enabling flexibility in system configuration.

- **Back-end and front-end links** facilitate connectivity and communication solution.

- **Enhanced Cooling:** VPX systems incorporate advanced cooling mechanisms to dissipate heat efficiently, enabling reliable operation even in high-temperature environments.

KEY FEATURES

HIGH-PERFORMANCE AND HIGH-BANDWIDTH

Designed to deliver high-performance and high-bandwidth computing capabilities, the MCS can support high-speed data processing, complex algorithms and real-time applications, making it ideal for demanding tasks on the go.

SWAP-C

SWaP-C optimised for deployment in vehicles with limited space. The MCS is designed for durability, ensuring that systems are cost-effective and can be supported and maintained over extended periods.

RUGGEDNESS

Built to withstand harsh operating environments with its IP65 rating, the MCS is suitable for applications in public safety, defence and other industries with challenging operating conditions. The MCS is designed to meet stringent environmental standards for shock, vibration, temperature and humidity, etc.

MODULAR AND SCALABLE

The MCS offers room for integration with multi-processors, ethernet switches, power supplies and video processors, allowing users to easily expand or upgrade their systems as needed. It also provides a multitude of interfaces to support data flow and communication.

STANDARD COMPLIANCES

- MIL-STD-810E/G
- MIL-STD-461G
- MIL-STD-1275E
- IEC 529 Standard IP65 rating

KEY APPLICATIONS

The versatility and ruggedness of VPX computers make them suitable for a wide range of applications that require high-performance computing, reliability and scalability.

Public Safety and Security (Border Patrol and Security)

Humanitarian Assistance and Disaster Recovery

Para-Military and Defence

Industrial (Mining, Marine)

MODULE CAPABILITY (3U VPX MODULES)

MODULE	FUNCTION
VIDEO PROCESSING MODULE	a. Incorporates both an HD-SDI frame grabber and a GPU (Graphics Processing Unit), designed to provide powerful capabilities for real-time video processing and analytics b. AI-integrable to support swift processing of large volumes of data feeds to generate actionable insights for informed decision-making during mission-critical operations
MULTI-PROCESSOR MODULE	Incorporates both a CPU (Central Processing Unit) and BMC (Baseboard Management Controller), providing computing power and remote-access capabilities
ETHERNET SWITCH MODULE	Incorporates a L2/L3-managed switch that is highly adaptable, offering internetworking capabilities while being flexible and configurable to meet varying network demands

OTHER PLATFORMS

Unmanned Aerial Vehicles (UAV)

Headquarters (HQ)

5G/LTE Connectivity

Fusion Cameras

TERREX

Piping high-definition video streams with applied intelligence back to HQ via SATCOM for swift and informed decision-making.

Unmanned Ground Vehicles (UGV)

5G/LTE Connectivity

Multi-Purpose Vehicles
Humanitarian Assistance and Disaster Recovery

Mobile Command Posts/Vehicles
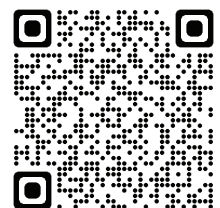Defence and Public Safety and Security

Autonomous Heavy-Duty Trucks
Mining

Unmanned Surface Vessels
Maritime

ABOUT ST ENGINEERING
ADVANCED NETWORKS & SENSORS

With more than 30 years of proven track record delivering products, network infrastructure and system integration capabilities for defence and public security agencies, we provide bespoke end-to-end turnkey support to meet your customers' unique challenges and business needs.

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