



AUGUST 2020 | NAMC MEMBER SPOTLIGHT

ARCHITECTURE, SECURITY, AND MODULARITY
AUTONOMY
COLLABORATION
EXTERNAL SYSTEMS
MOBILITY
MODELING & SIMULATION
POWERTRAIN
SURVIVABILITY
TESTING AND EVALUATION

GuardKnox Cyber Technologies USA, Inc.
John H. Northrop and Associates, Inc.
YawPITCH, LLC.
VITEC, Inc.
Enduralock, LLC.
Waltonen Engineering, Inc.
Wittenstein Aerospace & Simulation, Inc.
On-Point Defense Technologies, LLC.
GS Engineering, Inc.

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ARCHITECTURE, SECURITY, AND MODULARITY



GUARDKNOX CYBER TECHNOLOGIES USA, INC. | Plymouth, MI

POC: Joseph Romeo | joseph.romeo@guardknox.com | www.guardknox.com |

What do you consider your organization's differentiator?

All GuardKnox solutions incorporate a "defense-in-depth" methodology to offer high-performance communications and comprehensive cyber-resilience for mobile platforms. Our patented, high performance computing solutions are proven and deployed on military moving systems. GuardKnox's hardware is based on FPGAs and SoCs, making it scalable and flexible over the platform lifecycle. GuardKnox's software is based on a patented Service-Oriented Architecture (SOA) utilizing separation kernel hypervisors, ensuring safety and security-by-design. GuardKnox also offers custom engineering design solutions for vehicle Electrical/Electronic (E/E) architectures, including Zonal and Domain controller based approaches.

What capability gaps are you able to fill and which industry colleagues would you like to know about them?

GuardKnox will bridge the security gap in the industry by bringing decades of proven experience in safe and cybersecure computing from aviation defense applications and tailoring them to the mobility space. We will work with major defense primes to help secure all of the Army's ground vehicles with true cyber resilience.

What are your teaming goals within NAMC?

GuardKnox acts as a Cybertech Tier - this means our technology can complement both OEM and Tier 1 suppliers to the Defense industry through partnerships. We can either provide technology such as electronic control computing units directly for target vehicles or engineering services for designing such systems to stakeholders in the industry.

Capabilities:





AUTONOMY

JOHN H. NORTHROP AND ASSOCIATES, INC. | Virginia Beach, VA

POC: Matt Dooley | matt.dooley@jhna.com | www.jhna.com | [in](#)

What is something unique about your product or service?

JHNA's advanced autonomy concepts work is unique because our approach provides focused, relevant operational details even Army CONOPs typically fail to include in capabilities development documents. Our analytical approach decomposes operational tasks/subtasks into autonomous behaviors useful for robotic combat vehicle applications; this is unmatched anywhere else in the consulting industry.

What do you want other NAMC Members to know about you?

JHNA's work among its divisions cuts across almost all operational domains: air, ground, maritime, and cyber. We've been familiar with the principles and intent behind Multi-Domain Operations since before it was Army doctrine and dogma. We've been working with the Army on future vertical lift, robotics, watercraft, and software development for years.

What are your teaming goals within NAMC?

JHNA would like to team with industry partners in the field of autonomy development. JHNA would like to team with government efforts in charting an autonomy development and tech prioritization strategy to bring autonomous tactical robotics into the Army faster and at relevant scale.

Capabilities:

Autonomous Behaviors

Operational Concepts

Robotics

System Design and Engineering Services



COLLABORATION



YAWPITCH, LLC. | Holland, MI

POC: Rob Trepka | rob@yawpitch.com | www.yawpitch.com | [in](#)

What is something unique about your product or service?

We are a full service Manufacturers' Representative and technology integration company that serves the Great Lakes region. YawPITCH has over 23 years of experience working on technical applications around vehicle test in air, space, and ground applications. Most of that experience was developed at test and launch ranges on the West Coast and Southwest. We recently returned home to Michigan and are looking to help team mates and partners leverage our unique skillset and the capabilities of our partner companies.

We can deliver specific subsystems to our team mates and customers. These products include high channel count data acquisition, complete mobile test and command and control vehicles, antennas, high speed modems, data bus and high speed ethernet test and simulation solutions, rugged mission computers and data recorders, rack mount servers and LCD monitors, telemetry over ip/video/data distribution systems, rack mount, portable, and modular rf spectrum analyzers

What capability gaps are you able to fill and which industry colleagues would you like to know about them?

We can respond swiftly to opportunities with a wide range of Subject Matter Experts, product demonstrations, and prototype hardware. Specific area of expertise would include high channel count engine test, antenna systems with uplinks and downlinks, vehicle payload connectivity and testing, rugged processing and recording with encryption options, and rf signal analysis. Finally we really enjoy packaging up several of these technologies and delivering complete "Range in a Box" solutions.

What are your teaming goals within NAMC?

We are big believers in local collaboration and are a short drive from Detroit. We joined NAMC to better understand Army requirements and to support primes and small businesses that are building proposals with technically sound solutions. Please let us know if there is a specific application or subsystem that you would need to strengthen your approach.

Capabilities:

Autonomous Navigation & Controls	Cognitive & Collaborative Behaviors	Command & Control	Communication Systems
Custom Communications Vehicles	Human Machine Teaming	Modeling & Simulation	Network and Avionic Bus
Open Architecture & Standards Development	Range in a Box	Testing & Evaluation	Vehicle Electronics



EXTERNAL SYSTEMS



VITEC, INC. | Atlanta, GA

POC: Hamish Macmillan | hamish.macmillan@vitec.com | www.vitec.com | 

What is something unique about your product or service?

Our rugged militarized video encoders offer ultra-low latency streaming of situational awareness information from HD or analog video-based sensors on any type of vehicle or platform.

What do you consider your organization's differentiator?

We offer both COTS versions of our video streaming appliances as well as full custom design and prototyping services for specific application requirements.

What do you want other NAMC Members to know about you?

Our video streaming technologies are already deployed across all departments of the US military with ground vehicle design-in being a prominent area of success.

Capabilities:

Autonomous Navigation & Controls	Communications	Electronics	ISR	Low Latency	Low SWaP	Militarized
Perception & Situational Awareness	Rugged	Sensors	Situational Awareness	Streaming	Video	



MOBILITY

Enduralock

ENDURALOCK, LLC. | Lenexa, KS

POC: Harold Hess | hhess@enduralock.com | www.enduralock.com |  

What is something unique about your product or service?

Enduralock has developed a family of new fasteners. They are highly vibration resistant, permanently locking fasteners, that for maintenance are reversible and reusable. The fasteners have surpassed the aerospace vibration requirement for a self-locking nut by 10X, and we have demonstrated reusability to 250 cycles. For critical applications, the fasteners remain locked even with total loss of preload (clamping force). Enduralock has also developed the first self-aligning nut plate, where the nut element can "tip" to accommodate off-axis bolts. This dramatically reduces the time and cost of installation and maintenance. It also allows for a fixed position retaining ring on the bolt, which dramatically reduces the chance of FOD (foreign object debris).

Which Government Customer would you like to pitch your organization to?

Enduralock would like to present its technologies to the Army and the Marines. Enduralock's permanently locking fasteners, with reversibility and reusability with a standard 6-point socket, provide for a dramatic reduction in the time and cost of installation and maintenance. Applications include the tread in tracked vehicles and in the suspension of ground vehicles. Currently, permanent fasteners are used in the suspension, but for maintenance they need to be cut out, and specialized tooling needs to be used to apply them. The use of Enduralock fasteners would significantly improve the maintenance time, as the fasteners are permanently locking, but a standard hex socket reverses them, and they are reusable. For tread applications, Enduralock fasteners would greatly reduce the maintenance time for checking the torque periodically, as the fasteners remain permanently locked, unless a hex socket is applied. Another application is attachment of armor. Currently, armor is attached with bolts that are attached with a high preload. When a blast force occurs, the bolts shear at the head. A GVSC study showed that if the bolts were applied with a much reduced torque, they survived. Normally, however, armor cannot be attached with somewhat loose bolts. With Enduralock fasteners, however, the bolts remain locked even with total loss of preload. GVSC has purchased Enduralock bolts to perform ballistics testing for the attachment of armor. Enduralock is currently miniaturizing its fasteners to a #4-40. This will allow its use in missiles and satellites to eliminate the need for safety wire.

What are you most proud of?

Enduralock won the NASA iTech Cycle I competition in July 2019. Enduralock was chosen to apply its technology for use in the attachment of the capsule to the base ring for manned Indian space flight. Enduralock is scaling its fasteners to a #4-40 for the Indian Defense and Research Development Organization to eliminate safety wire in the fasteners used in missiles and satellites. In a joint development project, Enduralock also applied its technologies to a locking 20,000psi gas fitting for an off-shore oil well completions company. Enduralock is currently working on a project with a major aerospace fastener company to apply its locking technology to the company's hydraulic fittings.

Capabilities:

Materials

Mobility

Modeling & Simulation

Self-Aligning Nut Plate With Fixed Retaining Ring

System Design & Engineering Services

Vibration Resistant Fastener



MODELING AND SIMULATION



WALTONEN ENGINEERING, INC. | Warren, MI

POC: Thomas Laboda | thomas.laboda@waltonen.com | www.waltonen.com |

What is something unique about your product or service?

Waltonen offers FEA Modeling and Simulation (M&S) for suspensions, power train, suspension and structural elements. Along with FEA, Waltonen provides manufacturing and quality M&S. We offer full plant layout and manufacturing simulation including robotic assembly, Human Machine Interface, material flow, and process development. For Quality, Waltonen performs Variation Simulation Analysis (VSA) M&S for new designs, and existing products that are experiencing machining or assembly quality concerns. VSA uses software that analyzes all GD&T, assembly and machining processes and predicts when and where the failures may occur.

What do you consider your organization's differentiator?

Providing engineering services to the automotive, transportation, aerospace and military markets allows Waltonen to provide best practices that have been developed over multiple products. Working with both high and low volume production, our M&S solutions are customized to meet the unique market needs.

How did your organization originate?

Founded in 1957, Waltonen has been providing engineering services to the transportation, aerospace and military markets. With over 300 computer work stations, and 500 seats of CAD/CAM/CAE software, Waltonen can support the complete product lifecycle from development through production.

Capabilities:

Energy	Life Cycle Management	Manipulation	Mobility	Modeling & Simulation	Payloads Integration	Powertrain
Safety & Testing	Survivability	Suspensions	System Design & Engineering Services		Validation & Verification	
Vehicle & Platform System Integration						



POWERTRAIN



WITTENSTEIN AEROSPACE & SIMULATION, INC. (WA&S) | Rochester, MI

POC: Steven Howson | steven.howson@wittenstein-us.com | www.wittenstein-us.com | [in](#) [in](#)

What are your organizational goals?

As a registered US small business, WITTENSTEIN Aerospace & Simulation Inc. (WA&S), is actively working to expand the WITTENSTEIN proven defense products and services into more of the US defense markets. Currently looking to expand our US engineering and manufacturing base located in Bartlett, Illinois to help support the future US based defense opportunities.

What is something unique about your product or service?

WITTENSTEIN is renowned for the quality, endurance and precision of its motion control and mechatronic drive systems. We invented the world's first zero-backlash gearbox and drive system, frequently used in aerospace, defense, and other high-precision, intense applications. Our solutions deliver extreme precision, mobility and endurance within the harshest environments on (and off) the planet. From combat vehicles on land to radar and missile actuation to fin stabilizers on warships, our motion control and servo drive systems are trusted for performance excellence and endurance.

What do you consider your organization's differentiator?

WITTENSTEIN's differentiator: Products with unsurpassed precision and endurance combined with global expertise in defense applications. This powerful combination delivers the most successful customization and outcomes for even the most complex, challenging applications. Our high power-density components are environmentally sealed and tested to ensure success.

Our solutions cover the full range of power level solutions: from micro machines to rail (train) drive systems, and power drive electronics to super-quiet steering systems for the world's quietest submarines.

Capabilities:

Actuators	Aerospace	Combat Vehicle Electrification	Combat Vehicle Powertrain	Defense	Gearboxes
Harsh Environments	Mechatronics	Oil & Gas	Powertrain	Power Generation & Distribution	
Remote Monitoring Gearbox	Servo Drive Systems	Servo Motors	Simulation	Turret Drives	



SURVIVABILITY



ON-POINT DEFENSE TECHNOLOGIES, LLC. | Ft. Walton Beach, FL

POC: Gregg Garbee | gregg.garbee@onpoint-dt.com | onpoint-dt.com |

What is something unique about your product or service?

On-Point provides total life-cycle support of integrated missile systems for tactical aviation and ground munitions needs. As International subject-matter experts for guided ground missile systems, we are uniquely capable of manufacturing and integrating all system and subsystem components for US and foreign customer needs. A specific example of our unique capabilities involves upgrades to night-sights. The M220 Tube-Launched Optically-Tracked Wireless-Guided Missile system, with the On-Point upgraded AN/TAS-4SDI sight, meets or exceeds the Detection, Recognition, and Identification range capability of the ITAS at half the price (while firing all types of TDW missiles).

What do you consider your organization’s differentiator?

Our business is characterized by speed, flexibility and quality. When a large defense contractor decommissioned production and depot-level repair lines for TDW Missile Launcher (TML) Systems, it resulted in a void of new production and depot repair subject matter expertise and capability. On-Point Defense Technologies stepped up to the plate and aggressively pursued a TML Integration & Depot repair contract. On-Point simultaneously commissioned a new facility and progressed from Award to a Production Readiness Review in 45 days. First deliveries were executed 120 days after receiving our first orders.

What are your teaming goals within NAMC?

We would like to team and collaborate with Large, Medium and Small Businesses that have a similar commitment to delivering innovative and novel ways to reduce size, weight, power consumption, cost and logistics demands on vehicles and personnel.

Capabilities:

Cognitive & Collaborative Behaviors		Complete Life-cycle Management for Weapon Systems			Contractor Logistic Services (CLS)		
Controllers	Electronics	Human Machine Teaming	Launchers	Lightweight Materials	Mobility	Modeling & Simulation	
Payloads Integration		Perception & Situational Awareness		Product And System Repair		Safety & Testing	Sensors
Survivability	System Re-Design	System Upgrade	Thermal Sights	Validation & Verification			
Vehicle & Platform System Integration			Weapon System Modernization				



TESTING AND EVALUATION

GS ENGINEERING, INC. | Houghton, MI

POC: Kevin Hubert | kevin.hubert@gsengineering.com | www.gsengineering.com | [in](#)

What is something unique about your product or service?

GS Engineering is well-equipped to evaluate materials, components, subsystems, and full vehicles. We test suspension systems on paved RMS courses, vehicle dynamics and braking systems on paved courses, and verify durability and performance on a variety of obstacles and customized off road courses based on your specific vehicle testing and validation requirements. Having served military programs for decades, our staff views every durability and testing challenge as a mission, and we serve every client with our trademark dedication and focus.

What are you most proud of?

Our team is tightly integrated with design and test activities, offering a single source for fully validated designs. From early design simulations on small systems to full vehicle concepts, our team develops each element with your long-term business goals in mind. Working with the latest analysis software, GS Engineering's structural analysts evaluate designs subject to complex loading conditions and environments. This ensures that your system withstands harsh treatments and can move forward from design to production with confidence based on accurate modeling, testing, and validation.

How did your organization originate?

GS Engineering has evolved from a small services organization to an established company providing turn-key solutions across a broad spectrum of markets, clients, and products. This experience supports rapid adaptation to our client's challenges. With our skilled workforce embracing aggressive schedules and completing complex objectives, GS Engineering is here to help you realize your dreams.

Capabilities:

Autonomous Navigation & Controls	Controllers	Durability Testing	Electronics	Energy	Load Case Development
Manipulation	Materials	Mobility	Obsolescence & Reverse Engineering	Payloads Integration	
Perception & Situational Awareness		Performance Testing	Powertrain	Sensors	Suspensions
System Design & Engineering Services		Validation & Verification	Vehicle & Platform System Integration		