

# Department of the Navy SBIR/STTR Transition Program

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 NAVSEA #2022-0357

Topic # N192-102  
 Blind Mating Connection for 19-inch Electronic Industries Alliance Racks in AEGIS Computing Infrastructure  
 McCormick Stevenson Corp.

## WHO

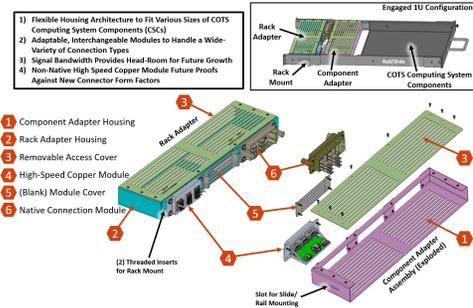
**SYSCOM:** NAVSEA  
**Sponsoring Program:** NAVSEA PEO IWS X

**Transition Target:** AEGIS Computing Infrastructure, MK6 MOD X

**TPOC:** (540) 653-2374

**Other Transition Opportunities:** Program Executive Office Unmanned and Small Combatants (PEO USC) platforms such as unmanned maritime systems, future Frigate (FFG(X)), Multi Mission Surface Combatant (MMSC)

**Notes:** Reduce Mean Time to Repair (MTTR) for AEGIS computing equipment by 20%  
 Reduce life cycle and upgrade costs by 50%  
 Reduce Technology Insertion (TI) upgrade time from a current schedule of 40 weeks to 10 weeks



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## WHAT

**Operational Need and Improvement:** Improving the efficiency and speed of Technology Insertion Upgrades is a priority of the Navy. The Universal Blind Mate System provides improved repair and replacement speeds to 19" Electronic Industries Association (EIA) Racks, decreasing the time required for ships to be docked for repair.

**Specifications Required:** OPEN19, Versa Module Europa (VME), Advanced Telecommunications Computing Architecture (ATCA), MIL-S-901D (Shock), MIL-STD-461 (EMI), MIL-STD-810 (Temp), MIL-STD-167 (Vibe), MIL-STD-1399-300 (Power), DoD-STD-1399 (Ship Motion)

**Technology Developed:** Universal Blind Mate System to connect Commercial Off The Shelf (COTS) computing components in 19" rack  
 Adaptable and Interchangeable Blind Mate Connector modules enable customization for a wide variety of COTS computing components  
 High Speed, non-native, blind mating architecture is connector agnostic. Provides future proofing against new connection form factors and headroom for faster connections.

**Warfighter Value:** Decrease manual rewiring labor  
 Reduce potential for re-wiring errors  
 Easier/faster repair/replace of COTS Computing Components

## WHEN

**Contract Number:** N68335-21-C-0424

**Ending on:** Jun 25, 2024

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Final Design Concept	Medium	Identify BMC solution for all required signal types. Guarantee signal pass-through and mechanical blind mate	3	1st QTR FY21
Requirements Specification Document	Medium	Quantify required values for signal performance and mechanical definition for blind mate.	3	1st QTR FY22
First Prototype Build	Medium	Mechanical and electrical components correctly assemble to create BMC solution and identification of improvements to the mechanical solutions.	4	4th QTR FY22
Initial Performance Testing	Medium	Establish baseline signal performance for BMC solution and identify any electrical improvements required.	4	4th QTR FY22
Second Prototype Build	Low	Identify if redesigns improve BMC engagement and meet mechanical requirements.	5	4th QTR FY23
Second Signal Performance Testing	Low	Identify if redesigns improve signal performance to acceptable levels for identified application.	5	3rd QTR FY24

## HOW

**Projected Business Model:** MCCST plans to integrate the developed technology into 19" EIA server racks used in the MCE's for the Navy customer. MCCST aims to adapt the current technology to meet the requirements of the transition target and work with prime contractors to integrate the technology in future designs. MCCST plans to license the developed intellectual property to prime contractors for manufacture and USG use.

**Company Objectives:** Objective is to partner with system integrator to include this technology in future MCE designs.

**Potential Commercial Applications:** Commercial applications exist in 19-inch rack server systems that have need for large-scale implementation with the down-stream need for hardware upgrades and replacement efficiency. Specific opportunities include cloud-based computing servers, data processing facilities, cryptocurrency mining operations.

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