

DRAFT
STATEMENT OF WORK
TTWCS v5.4.1
Rugged Rack Mount Processor

1 **SCOPE**

This Statement of Work (SOW) describes the requirements for the procurement of the Tomahawk Tactical Weapon Control System (TTWCS) v5.4.1 x86 processor based Rugged Rack Mount Processor (RMP) hereinafter referred to as the Unit, and extra hard drives in carriers hereinafter referred to as Extra Hard Drives. The Contractor shall be responsible for the manufacture / assembly of the RMP and delivery of the RMP and any associated parts as described in this Statement of Work and the applicable Vendor Item Control Drawing (VICD).

2 **APPLICABLE DOCUMENTS**

a. Drawing Number 8501759, TTWCSv5.4.1 Rugged Rack Mount Processor Vendor Item Control Drawing

b. DFARs Clause 252.211-7003, Unique item identifier

3 **REQUIREMENTS**

3.1 If anything in this SOW conflicts with the requirements of the VICD, the VICD shall take precedence.

3.2. There will be three configurations of the RMP that will be procured along with extra hard drives in carriers, see Table 1. The Unit is the Chassis with: Motherboard, CPU, Fans, Power Supply, Switches/Indicators, Filters, Cables (SATA Cables reconfigurable to Motherboard SATA or RAID Card):

3.2.1. Unit A: This Unit shall contain Option 1 per the VICD, which includes requirements such as 2Gb of RAM per processor core (for example, dual quad core processors will require 16 Gb of RAM) . The Unit A shall also contain one removable 1Tb hard disk drive and bays for three additional drives for future expansion.

3.2.2. Unit B: This Unit shall contain Option 2 per the VICD. This unit shall be identical to Unit A with the following exceptions: it shall contain a minimum of 32 Gb of RAM and four removable 1Tb hard disk drives connected to a RAID 5 controller. This configuration shall work with a Saturn 8250P Multiport PCI Serial Controller card in the PCI 32-bit, 33 MHz, 5V slot. Two Saturn 8250P Multiport PCI Serial Controller cards shall be provided as GFE to the Contractor for compatibility testing to ensure the card will work in the Unit.

3.2.3. Base Unit: This is the unit that Unit A and Unit B will be built upon. It shall be procured in this configuration as well.

3.3 Extra Drives: The Extra Hard Drives are in addition to and must be identical to those installed in the Units and must include any removable carrier if required for installation in the Units.

3.4 The Contractor shall apply an IUID label to the Units in accordance with the VICD instructions on labels. The Contractor will input the Unit's IUID into the IUID Registry database.

3.5 The Contractor shall have an active process to avoid incorporation of counterfeit parts into the Units.

3.6 Obsolescence Management

The Contractor shall demonstrate an active Obsolescence Management Program. The Contractor shall select parts which are in the early period of their commercial availability so as to have a maximum practical life cycle. The Contractor shall notify the procuring activity of any obsolescence issues with any of the parts and shall work with the procuring activity to identify potential alternate parts. Processors shall be selected from an OEMs long life product line (usually referred to as Embedded) with an expected life span of 7 years and introduced to the market within the last two years of the date of this solicitation. The Contractor shall submit lifecycle data to include market introduction date and expected life cycle for the following major items: microprocessor and support chips, motherboard, RAM, hard drives, RAID card, graphics card, DVD drive and power supply.

CDRL A001 – Obsolescence Management Plan

CDRL A002 – Source Data for Forecasting Diminishing Manufacturing Sources and Material Shortages (DMSMS)

3.7 The Contractor shall ensure that the Units procured under the Base Period of the contract are identical (both physically and functionally) to those which may be procured during the subsequent Option Periods. In the event that the Contractor is unable to comply, the Contractor shall be required to submit a quantity of test samples (we anticipate no more than two samples will be required) for testing/qualification by the Government prior to delivery of additional units. If the change causes the Unit or drives to fail testing / qualification by the Government, the option order may be canceled at no cost to the Government. This requirement applies to both the Unit and the Extra Drives (and carriers (as applicable)) procured along with it. The Extra Drives (and carriers (as applicable)) shall be the same part number, model number, firmware level, revision level and manufacturer as those delivered within the Unit itself.

3.8 Reliability:

The Contractor shall provide calculated reliability numbers for the Unit A and Unit B configurations. The reliability calculations shall include MTBF, failure rate, quantity, vendor, and vendor part number for the components. The calculations shall use MIL-HDBK-217F-2,

calculated in a Navy Sheltered Environment. All Units shall carry a minimum composite Mean Time Between Failure (MTBF) rating of 10,500 hrs (Naval Sheltered (Ns)).

3.9 Testing:

Government qualification testing per the Environmental Requirements section of the VICD, and Government / Contractor joint resolution of deficiencies found during qualification testing, are required prior to acceptance of the final design by the Government. For the Contractor, the most significant testing will likely be the Shock Qualification testing as detailed in the VICD, which will occur at Lockheed Martin Moorestown, NJ and at a Barge Shock Test Facility, normally in Rustburg, VA.

- a. An exploratory shock test of one of the first Units delivered under this contract shall take place at Lockheed Martin Moorestown, NJ in February 2012. This test is intended to provide a data point for likely points of failure during the official Government Qualification Testing . The results of the exploratory shock test will be shared with the Contractor who shall use data to modify the Units prior to the official Government Qualification Testing.
- b. Testing to determine that the Unit is form, fit and function acceptable shall be conducted at NSWC PHD. Testing will be completed and acceptability determined and communicated to the Contractor via the NSWC PHD Acquisition Department within 30 days of receipt.
- c. Official Government Qualification Testing of the Unit shall occur at NUWC Division Newport (Newport, RI), Lockheed Martin Moorestown, NJ, and at a Barge Shock Test facility, normally in Rustburg, Virginia in accordance with the Environmental Requirements section in the VICD. Shock and vibration tests of the standalone x86 RMP Unit will occur on the Shock Table at Lockheed Martin Moorestown, NJ. Shock testing with the x86 RMP in the equipment rack will occur at a Barge Shock Test facility. Other environmental testing such as humidity, temperature, noise and EMI/EMC will occur at NUWC Division Newport. We anticipate testing will be completed and acceptability determined and communicated to the Contractor via the NSWC PHD Acquisition Department approximately February 2013.
- d. During Qualification Testing, the Contractor and the Government shall work together to resolve any deficiencies identified. Resolution may require on-site support at the test facility with real time changes (not a serial back-and-forth process), or return of the Units to the Contractor for rework or repair, or resolution may be effected by the Contractor providing a “repair kit” to the Government. The decision on the method of resolution shall be by mutual agreement between the Government and the Contractor. Verification of resolution may require a repeat of the testing in the Environmental Requirements section in the VICD.
- e. Changes made to the Unit as a result of Qualification Test problem resolution shall be incorporated into the Units delivered during subsequent quantity buys and shall be backfit into units delivered prior to the qualification tests.

3.10 Inspection and acceptance:

- a. Inspection and acceptance of the Units shall be at Naval Surface Warfare Center, Port Hueneme Division via DD Form 250, Material Inspection and Receiving Report.
- b. Receiving Inspection shall be conducted upon arrival to ensure quantities and type of items received match what was ordered and to identify any obvious damage resulting from inadequate packaging occurring during transportation from the Contractor's facility to the Government.

3.11 Packaging, Handling, Shipping and Transportation (PHS&T)

Packaging of the Units shall be in accordance with best commercial practices. All Units shall be individually packaged for handling, transit and delivery. Extra Hard Drives shall be delivered mounted in carriers, if applicable, and each Extra Hard Drive shall be individually packaged for handling, transit and delivery. All packaging shall have P/N and S/N clearly visible on the package exterior.

3.12 Meetings

The Contractor shall host a meeting with the Government following award of the contract to discuss test and production plans for the x86 RMP. The contractor shall host a meeting with the Government prior to initial delivery of the first units for inspection of the units and discussions on the upcoming production units. The contractor shall host a meeting with the Government to review the initial production rate units.

CDRL A004 – Report, Record of Meetings/Minutes

3.13 Drawings

The Contractor shall provide copies of drawings, parts lists and Bill of Materials developed by the Contractor for production of the units. The drawings will be used by the Government to develop Logistics Support Products for the units.

CDRL B001 - Engineering Documentation Product Drawings

3.14 Maintenance Support Material

If diagnostic or fault isolation procedures, tools, or software is developed by the Contractor to support their development and production effort, the Contractor shall provide copies of such diagnostic / fault isolation procedures, tools and software to the Government for use in developing maintenance products.

CDRL A003 - Maintenance Support Material

4 CONTRACT DELIVERABLES

Contract deliverables shall be delivered to the Government in ISO 32000 Portable Document Format without content protection unless otherwise specified herein. All computer files shall be delivered on CD or DVD and may, at the contractor's option, also be delivered electronically. Exceptions may be approved by the Government.

Contract data shall be delivered to:

Naval Surface Warfare Center, Port Hueneme Division
4363 Missile Way
Port Hueneme, CA 93043-4307
Attn: L Department Data Manager

4.1 List of Deliverables

CDRL A001 – Obsolescence Management Plan

The contractor shall provide an Obsolescence Management Plan.

CDRL A002 – Source Data for Forecasting Diminishing Manufacturing Sources and Material Shortages (DMSMS)

The contractor shall provide reports of Obsolescence issues and shall work with the Government to identify alternate parts.

CDRL A003 – Maintenance Support Material

The contractor shall provide any diagnostic or fault isolation procedures, tools, or software developed to support the production effort.

CDRL A004 – Report, Record of Meetings/Minutes

The contractor shall host meetings between the Government and the Contractor.

CDRL B001 – Engineering Documentation Product Drawings

The contractor shall provide copies of drawings with parts lists and Bill of Materials as developed for production purposes. The Government shall use the drawings for development of ILS products.

5 GOVERNMENT FURNISHED EQUIPMENT / INFORMATION / MATERIAL (GFE / GFI / GFM)

The Government shall provide two Saturn 8250P Multiport PCI Serial Controller cards for Contractor compatibility testing within 30 days ARO. All GFE shall be returned to the Government before the contract ends.

6 DEFINITIONS

CPU	Central Processing Unit
DFARS	Defense Federal Acquisition Regulation Supplement
DVD	Digital Video Disk
EMI/EMC	Electromagnetic Interference / Electromagnetic Compatibility
F3	Form, Fit and Function
GFE	Government Furnished Equipment
GFI	Government Furnished Information
GFM	Government Furnished Material
IUID	Item Unique Identification
LRU	Lowest Replaceable Unit
MTBF	Mean Time Between Failure
NSWC PHD	Naval Surface Warfare Center, Port Hueneme Division
NUWC DN	Naval Undersea Warfare Center, Division Newport
PCI	Peripheral Component Interconnect
RAID	Redundant Array of Independent Disks
RAM	Random Access Memory
RMP	Rugged Rack Mount Processor
SATA	Serial Advanced Technology Attachment
SOW	Statement of Work
TTWCS	Tactical Tomahawk Weapons Control System
VICD	Vendor Item Control Drawing