

xTech | PNT CMOSS Plugfest Event

I. Background

The Program Executive Office for Intelligence Electronic Warfare & Sensors (PEO IEW&S), Project Manager Positioning Navigation & Timing (PM PNT), the U.S. Army Combat Capabilities Development Command (DEVCOM) and the C5ISR (Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance and Reconnaissance) Center, are pleased to announce the xTechPlugfest Competition also known as the PNT CMOSS Plugfest. The Army will host the PNT CMOSS Plugfest at the Open Innovation Lab (OIL) from **8 – 19 November 2021**. The OIL is a truly open collaborative space where industry, academia, and government can join forces to create the cutting edge of PNT technology (<https://apntoil.army.mil/>).

PEO IEW&S, PM PNT and DEVCOM C5ISR have partnered with the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) (ASA(ALT)) to deliver this competition. The Army recognizes that it must continue enhancing engagements with eligible businesses by (1) understanding the spectrum of ‘world-class’ technologies being developed commercially that may benefit the Department of Defense (DoD) and (2) integrating the sector of commercial innovators into the DoD Science and Technology (S&T) ecosystem. PNT CMOSS Plugfest will allow for cooperation between eligible businesses and Army PNT stakeholders, provide for prize money, and enable government stakeholders to provide feedback to these businesses to help accelerate the transition of technology into the Army.

The PNT CMOSS Plugfest will provide non-dilutive seed prizes to select entities to attend and participate to demonstrate capabilities that currently exist for **(1) CMOSS PNT cards, (2) CMOSS switch cards and (3) CMOSS chassis** to meet CMOSS compliance. Ultimately 15 entities will be invited to demonstrate their technology solutions at the PNT CMOSS Plugfest event tentatively scheduled between 8-19 November 2021 at Aberdeen Proving Grounds, MD, compete for prize money and up to five (5) overall winners may be invited to submit a proposal for a follow-on prototype award for their cards and/or chassis solutions (contract amounts TBD). Details on the prize structure, schedule, and evaluation factors are listed below in this announcement.

The efforts described in this Announcement are being pursued under the authorities of 10 U.S.C. § 2374a (Prizes for Advanced Technology Achievements) and 10 U.S.C. § 2371b (Prototype Projects).

II. Purpose

Problem Statement: The Army needs CMOSS (C5ISR/Electronic Warfare Modular Open Suite of Standards) solutions that address the overburdened vehicle platform size, weight, power and cooling (SWaP-C) shortcomings while enabling Multi-Domain Operations (MDO). Solutions need to minimize platform specific integration, and enable the fielding of subsequent capabilities (i.e., circuit card assemblies) without the need of any additional cabling or mounts.

PM PNT efforts focus on developing an assured PNT (A-PNT) capability as CMOSS. PM PNT is looking to understand what capabilities currently exist for **(1) CMOSS PNT cards, (2) CMOSS switch cards and (3) CMOSS chassis** while learning what development efforts are underway to meet CMOSS compliance.

III. Eligibility Requirements

The PNT CMOSS Plugfest is voluntary and open to all eligible entities. Each eligible entity:

- May not be a U.S. Federal government entity or employ a U.S. Federal employee acting within the scope of their employment.
- Required to register in System for Award Management (SAM) and have or obtain an active CAGE code, DUNS number, and not be on the exclusions lists (debarred or suspended). Instructions on how to obtain a CAGE code can be found on the competition registration page.

IV. Program Submission Process

All PNT CMOSS Plugfest submissions are treated as company proprietary information and contents are disclosed to USG employees or designated support contractors only for the purpose of evaluation and program support. Detailed feedback will be provided to all participants at the end of each phase. The purpose of providing this feedback is to help accelerate transition of the technology to an Army user by providing insight on best applications for the technology within the Army, suggestions for product improvement for Army use, and recommended next steps for development. However, the Government may not respond to questions or inquiries regarding this feedback.

The process of this competition will consist of the following three (3) parts described in greater detail below:

Part 1: Registration and Plugfest Application

All eligible entities interested in applying to the PNT CMOSS Plugfest must first register for an account through the OIL website at <https://apntoil.army.mil/>. Registration can also be accessed through the xTech website at <https://www.xtechsearch.army.mil/>.

To register for an account on the OIL website, follow these steps:

1. Go to the [OIL Portal](#). (Through the OIL or xTechSearch websites)
2. Sign up for an account.
3. Log into the OIL Portal
4. Select CMOSS Plugfest
5. Select Registration for “PNT CMOSS Plugfest”
6. Complete the form in its entirety, check acknowledge box and select “Submit”

The request for registration window will be open from **16 – 27 August 2021**. Confirmation of registration or feedback will be coordinated individually after the registration window has closed.

Each application will be evaluated as follows:

PNT CARD APPLICATIONS:

All PNT CARD applications must meet the following threshold requirements:

1. Timing cards must comply with a slot profile of SLT3x-TIM-2S1U22S1U2U1H-14.9.2-1 and a module profile of MOD3p-TIM-2S1U22S1U2U1H-16.9.2-2 as defined in ANSI/VITA 65.0 and ANSI/VITA 65.1. Connections on the front of timing cards can only be for key fill and maintenance.
2. Timing cards must support a 100 MHz Radial REF_CLK and a 1 PPS Radial AUX_CLK.

Each PNT CARDS application meeting the threshold requirements will be evaluated based on their ability to meet the following characteristics:

- VICTORY Messaging and other compliance standards
 - Timing cards should use the Control Plane for the VICTORY Data Bus (VDB).
 - PNT systems should implement services to distribute PNT data for other client systems' consumption:
 - i. Position Service (POS) <VT50100-V1.9>
 - ii. Time Synchronization Service <VT50000-V1.9>
 - iii. Orientation Service <VT50200-V1.9>
 - iv. Direction of Travel Service <VT50300-V1.9>
 - v. Assured PNT <VT61600-V1.9>
 - vi. Global Positioning Service (GPS) Receiver < VT61000-V1.8-V1.9> or < VT61000-V1.4-V1.7>
- Supported GPS receivers including SAAS-M, M-Code , Alternative RF signals, or other signals used
- Viability of approach to obtain assured timing

SWITCH CARD APPLICATIONS:

All SWITCH CARD applications must meet the following threshold requirements:

1. Ethernet Switch Module Profile: MOD3-SWH-6F1U7U-16.4.15-2
2. Ethernet Switch Slot Profile: SLT3-SWH-6F1U7U-14.4.14

Each SWITCH CARDS application meeting the threshold requirements will be evaluated based on their ability to meet the following factors:

- Support for the following interfaces:
 - Switch <VT50900-V1.9>
 - Switch Data Interface <VT50901-V1.9>
 - Switch Data Interface Network Layer and Higher Specifications <VT50901.T4-V1.7>
 - Switch Data Interface IPv4-Specific Specifications <VT50901.T5-V1.2>
 - Switch Management Interface <VT50902-V1.7>
- Support for additional module profiles
- Support for different data rates, (i.e. 1, 10, 40, and/or 100 GbE)
- Switch cards should physically separate control plane and data plane
- Existence of separate security domains

CHASIS APPLICATIONS:

All CHASIS applications must meet the following threshold requirements:

1. Chassis must support the PNT and switch card profiles as defined above:
 - a. SLT3x-TIM-2S1U22S1U2U1H-14.9.2-1
 - b. SLT3-SWH-6F1U7U-14.4.14

Each CHASIS application meeting the threshold requirements will be evaluated based on their ability to meet the following factors:

- Physical dimensions of the chassis
- Estimated weight of chassis
- Ruggedization of current chassis
- Power requirements and max power dissipation

Each application meeting the specified threshold requirements will be evaluated by the PNT CMOSS Plugfest team based on the criteria described above and up to 15 of the most highly evaluated applicants will be selected and awarded a prize of \$5,000 and invited to the PNT CMOSS Plugfest event in Part 2.

Part 2: Plugfest Event

In Part 2: Plugfest Event, up to 15 selected Finalists from Part 1 will be invited to attend the Plugfest Event tentatively scheduled for in-person between 8-19 November 2021. Participants will tentatively be required to travel to the OIL located on Aberdeen Proving Grounds, Maryland for their assigned date and time. There will be no cost reimbursement provided for any travel associated for the event. While at the OIL, PNT CMOSS cards, CMOSS switch cards and CMOSS chassis will be evaluated based on laboratory measurements of the same evaluation criteria in Part 1 and other evaluation factors that will be provided to the Part 2 participants. Further details on each scoring dimension and dimension weighting will be provided to all Part 2 participants. Upon conclusion of the event, up to five (5) of the most highly evaluated participants in Part 2 will be selected as the PNT CMOSS Plugfest winners and awarded an additional prize of \$15,000 each and an invitation to submit an application for a follow-on prototype award. Up to five (5) runner-ups based on the evaluations will be selected and awarded an additional prize of \$10,000. All 15 participants in Part 2 will receive detailed feedback on their solutions from the PNT CMOSS Plugfest team through written evaluations and virtual de-briefs at a date and time to be determined following the competition.

Part 3: Potential Follow-on Contract

The up-to five (5) winners selected from Part 2 will be the only entities eligible to participate in Part 3: an invitation to submit a proposal for a follow-on prototype award for their cards and/or chassis solutions. Up to five (5) proposals may be selected for follow-on awards. A separate announcement will be issued with detailed instructions on how to submit the follow-on prototype proposal and will be provided to the Finalists selected for a prize award from Part 2.

V. Monetary Prizes and Awards

Prizes will be offered under 10 U.S.C. § 2374a (Prize competitions). The total prize pool is \$200K. The potential prototype awards will be offered under 10 U.S.C. § 2371b (Prototype Projects) for amounts to be determined. Other non-monetary incentives are provided through

participation in the PNT CMOSS Plugfest event including networking and technical feedback from Army subject matter experts to help participants engage and stay engaged with the Army.

ACTIVITY	NUMBER INVITED	NUMBER OF AWARDEES	PRIZE [10 USC 2374A]	POTENTIAL FOLLOW-ON CONTRACT [10 U.S.C.. § 2371B]
PART 1: REGISTRATION	Open	Up to 15	\$5K, up to 15 each	N/A
PART 2: PLUGFEST INCENTIVES	Up to 15	Up to 10	\$15K, up to 5 each \$10K, up to 5 each	N/A
PART 3: POTENTIAL FOLLOW-ON CONTRACT	Up to 10	Up to 5	N/A	TBD

VI. Proposed Schedule (Subject to Adjustments)

Date	Activity
16-27 Aug 2021	Part 1: Registration window opens
10 Sep 2021	Part 1: Participants selected (up to 15)
13 Sep 2021	Part 1: 1-on1's with selected participants
1 Nov 2021	Kickoff meeting held with all selected participants and govt. stakeholders
8-19 Nov 2021	Part 2: PNT CMOSS Plugfest Event
15 Dec 2021	Part 2: Announce winner(s) (up to 10)
NLT Jan 2021	Part 2: Host 'de-brief/feedback sessions' with each participant
Jan 2021	Part 3: Invitations to submit a proposal for a follow-on prototype award (up to 5)

VII. Standards

Additional information about the standards can be referenced at the following links:

- VICTORY (<https://www.victory-standards.org/index.php/publicly-available-documents>)
- OpenVPX (<http://www.vita.com>)
- SOSA (<http://www.opengroup.org/sosa>)

VIII. Disclaimers

Registered participants shall be required to assume any and all risks and waive claims against the Federal Government and its related projects, except in the case of willful misconduct, for any injury, death, damage, or loss of property, revenue, or profits, whether direct, indirect, or consequential, arising from their participation in this competition, whether the injury, death, damage, or loss arises through negligence or otherwise.

Participants shall be required to obtain liability insurance or demonstrate financial responsibility, in amounts determined by the Army, for claims by:

- Third parties for death, bodily injury, or property damage, or loss resulting from an activity carried out in connection with participation in this prize competition, with the

Federal Government named as an additional insured under the registered participant's insurance policy and registered participants agreeing to indemnify the Federal Government against third party claims for damages arising from or related to prize competition activities; and

- Federal Government for damage or loss to USG property resulting from such an activity.

IX. Intellectual Property

The Army is a strong proponent of deliberate intellectual property (IP) rights and management by the private sector and the DoD.

For the PNT CMOSS Plugfest:

- The Federal Government may not gain an interest in IP developed by a participant without the written consent of the participant;
- Nothing in this competition shall diminish the Government's rights in patents, technical data, technical information, computer software, computer databases, and computer software documentation that the Government had prior to this effort, or is entitled to, under any other Government Agreement or contract, or is otherwise entitled to under law; and

X. Reimbursement of Costs

The USG will not reimburse participants for any costs associated with preparing or participating in the PNT CMOSS Plugfest. Participation in the PNT CMOSS Plugfest is voluntary. This announcement/competition and/or the information presented herein will not obligate the USG in any manner. The posted information is provided for planning purposes only and does not constitute a Request for Proposal.

XI. Points of Contact

The xTech Program Office

Office of the Deputy Assistant Secretary of the Army, Research and Technology

Email: usarmy.pentagon.hqda-asa-alt.mbx.xtechsearch@mail.mil

Website: <https://www.xtechsearch.army.mil>

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<https://www.xtechsearch.army.mil/>