# A--Suite of Embedded Applications and Kernels (SEAK)

**Solicitation Number: W909MY14QSEAK**

Agency: Department of the Army
Office: Army Contracting Command
Location: ACC-APG - Washington

**Notice Type:**
Sources Sought

**Posted Date:**
May 23, 2014

**Response Date:**
December 5, 2014

**Archiving Policy:**
Automatic, on specified date

**Archive Date:**
January 4, 2015

**Original Set Aside:**
N/A

**Set Aside:**
N/A

**Classification Code:**
A -- Research & Development

**NAICS Code:**
541 -- Professional, Scientific, and Technical Services/541712 -- Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)

**Synopsis:**
Added: May 23, 2014 12:07 pm

The US Army Contracting Command - Aberdeen Proving Ground, Belvoir Division (ACC-APG Belvoir) on behalf of the US Army RDECOM CERDEC Night Vision and Electronic Sensors Directorate (NVESD) is conducting market research in accordance with Federal Acquisition Regulation (FAR) Part 10. Responders to this Request for Information (RFI) are asked to address the specific items of this notice as indicated in the following sections.
Background:
Certain classes of embedded computing problems significantly constrain Department of Defense (DOD) capabilities. Limitations on available compute resources, platform power, and associated size and weight, place restrictions on the types of solutions that can be applied to these problems. In general, if these problems could be solved faster, or with less power, then the defense of U.S national security would be materially improved. For purposes of this Request for Information (RFI), this processing is referred to as quote mark Critical Resource Constrained Processing. quote mark

The RDECOM CERDEC NVESD is working with the Defense Advanced Research Projects Agency (DARPA), Pacific Northwest National Laboratory (PNNL), and other Services to (a) establish a problem set for distribution to the research community representative of DOD relevant Critical Resource Constrained Processing, and (b) provide a rigorous means of evaluating and ranking, according to power and performance, proposed embedded solutions for this representative DOD problem set. The project, known as SEAK, will produce a suite of embedded applications and kernels that represent Critical Resource Constrained Processing domains of interest to the DOD embedded processing community, as well as a process for assessing proposed candidate solutions.

A key initial step in the SEAK project is to identify the processing workloads that, due to their complexity, whether computational, input-output (I/O), or bandwidth related, are not implementable within platform constraints using current (or even near-term) embedded processing approaches. The SEAK program intends to formulate these workloads in a manner distributable to the research community and technology providers to support research and investigation to develop potential solution approaches. The SEAK project encourages both hardware and software proposed solutions in support of the DOD critical resource constrained problems. The SEAK program anticipates characterizing Critical Resource Constrained Processing in terms of the problem's target metrics such as performance, power, and reliability. The purpose of this RFI is to establish dialog and solicit detailed information on workloads from DOD industrial partners in support of this activity.

DARPA's Microsystems Technology Office (MTO) is the Program Office that has overall responsibility for the SEAK project. PNNL is executing the SEAK technical effort, with advice and support from RDECOM CERDEC NVESD.

2. RFI Description.

DARPA, NVESD, and PNNL are specifically soliciting input to characterize DOD-relevant Critical Resource Constrained Processing embedded workloads with sufficient detail to permit PNNL to identify and classify key algorithms and kernels and to develop embedded Critical Resource Constrained Processing workloads for distribution to the research community and technology developers. Information provided may include such information as data flows, sensor and data bandwidths, SWaP constraints (size, weight, and power), communications traffic, tasking, and other unique workload requirements as appropriate for a specific processing example provided and as typically found in constrained DOD embedded computing platforms. The SEAK program will distill these workloads into a publically releasable format suitable for wide distribution.

3. Submission Instructions:
All parties wishing to provide a response to this RFI are encouraged to contact one of the Government Points of Contact listed below.
PNNL: Dr. Adolfy Hoisie, Adolfy.Hoisie@pnnl.gov
NVESD: Mr. John Hodapp, john.d.hodapp2.civ@mail.mil
DARPA: Dr. Joseph Cross, seak.rfi@darpa.mil
Additional information on SEAK, including information regarding response input format, points of contact, existing workloads and kernels, as well as other administrative and programmatic details, can be obtained via the following addresses:
http://hpc.pnnl.gov/projects/SEAK
Responders are encouraged to consider the sample response template, available via the indicated link above, as a guide. With advance coordination, the SEAK team may offer to visit interested parties as appropriate to facilitate information exchange in support of this effort.
We prefer that data be received with unlimited rights to the Government. However, we recognize that proprietary data may be provided. If so, it is the responsibility of the party submitting data to clearly mark such proprietary information and clearly separate it from the unrestricted information as an addendum. No Classified data shall be provided via non-secure channels. If classified information is to be provided (for example, to provide a general workload context), the interested party shall contact PNNL or NVESD for guidance and submission instructions. No classified or proprietary information shall be publically released under the SEAK program.
This request for information is intended to establish dialog and to request industry feedback; this is not a request for quotations or proposals. No solicitation exists and a formal solicitation may or may not be issued by the Government as a result of the responses to this RFI. The Government will not be liable for payment of any response preparation expenses.

**Contracting Office Address:**
ACC-APG - Washington, ATTN: CCCE-CW, 10205 Burbeck Road, Fort Belvoir, VA 22060-5863

**Place of Performance:**
NVESD Burbeck Road Fort Belvoir VA
22060-5863
US

**Point of Contact(s):**
MICHELLE HODGES, 703-704-0846

ACC-APG - Washington

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**Opportunity History**

- **Original Synopsis**
  May 23, 2014
  12:07 pm