

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
GEORGE C. MARSHALL SPACE FLIGHT CENTER

JUSTIFICATION FOR OTHER THAN FULL AND OPEN COMPETITION

I recommend that NASA, George C. Marshall Space Flight Center negotiate with Concurrent Computer Corporation (CCC) for the ImaGen rackmount systems to be used in the Software Development Facility (SDF) under the Vehicle Integration project within the Space Launch Systems program. The total estimated cost of this effort is \$238,040.00 and the estimated period of performance is one (1) year.

This procurement is in support of the Integrated Avionics Test Facilities which include the System Integration Labs (SIL), the Software Development Facilities (SDF), and the System Integration Test Facilities (SITF). These labs perform the integration and testing of the avionics systems and flight software for the new launch vehicles.

This recommendation is made pursuant to FAR 6.302-1 which implements the authority for 10 U.S.C. 2304(c)(1) for acquisition of supplies or services from only one source and no other supplies or services will satisfy agency requirements. Competition is impractical for the following reasons:

These ImaGen systems are for the additional facilities built as part of the Integrated Avionics Test Facilities. Because of the complexity of the real-time computing, the systems running the real-time operating system must be certified by the provider of the systems. All peripheral I/O devices and their associated driver software must be certified by the real-time operation system vendor. CCC's RedHawk real-time operating system is the real-time operating system currently used in the SIL, SDF, and SITF; therefore, any subsequent real-time systems must be purchased with this operating system. Any new systems purchased without this operating system would not be compatible with existing systems already in use in the various labs. The initial evaluation period lasted two years and involved one person performing the evaluation. Assuming a WYE yearly cost of \$225,000.00, the manpower cost would be \$450,000.00. Then three vendor systems would have to be purchased for evaluation and assuming \$15,000.00 per system that would cost \$45,000.00. If a different vendor were chosen then all eighty-four of the current systems would have to be replaced. The replacement cost would be \$1,260,000.00. The total cost to duplicate or replace the existing systems would be  $\$450,000.00 + \$45,000.00 + \$1,260,000.00 = \$1,755,000.00$

CCC provides extensive knowledge and experience relative to real-time hardware and software. CCC is considered an industry leader in the area of real-time computing and their implementation of a real-time Linux-based operation system is trusted throughout the industry. As the current trusted source for real-time systems supporting the development of the avionics systems and flight software for new launch vehicles; CCC meets the Government requirement.

Pursuant to NFS 1804.570, this proposed contract action will be published on the NASA Acquisition Internet Service (NAIS) and pursuant to FAR 5.201; this proposed contract action will be synopsized in the Federal Business Opportunities. The results received in writing will be added to this document by addendum.

Market research and product evaluations were conducted by ES53. Candidate systems were obtained and tested for evaluation. ES53 also relied on the expertise of contractors who have designed and implemented real-time hardware-in-the-loop simulation facilities at other government agencies and military and aerospace contractors. This research and evaluation shows that the equipment required by this acquisition is not available from any other manufacturer. The real-time operation system evaluation resulted in CCC's RedHawk operating system being the only real-time operating system capable of meeting all the Government requirements.

Technical data packages, specifications, engineering descriptions, statements of work, or purchase descriptions suitable for full and open competition are available upon request.

There are no known actions which the agency may take to remove or overcome barriers to competition before any subsequent acquisition for the services required.

For the above reasons, full and open competition is not feasible. Therefore, purchase of the equipment from CCC is the only practical approach.

I hereby certify the facts in this justification and any supporting data used for this justification are accurate and complete to the best of my knowledge.

Drew Hall  
Drew Hall  
Avionics & Software Ground Systems Test  
Branch  
ES53

2/14/2013  
Date

I hereby certify that the above justification is complete and accurate to the best of my knowledge and belief. In addition, I hereby determine that the anticipated cost to the Government will be fair and reasonable.

Michael R. Sosebee  
Michael R. Sosebee  
Contracting Officer  
Office Chief, Engineering Lab Support Office

2/26/13  
Date

Approved:

Roxanne C. Melton  
Roxanne C. Melton  
Contracting Officer  
Manager, Engineering Support Office

3/1/13  
Date