

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE
DO-C9

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2. AMENDMENT/MODIFICATION NO. 0003		3. EFFECTIVE DATE 06 SEP 2002	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (If applicable)
6. ISSUED BY CONTRACTING OFFICER NAVAL RESEARCH LABORATORY 4555 OVERLOOK AVENUE SW WASHINGTON, DC 20375-5326 ATTN: CODE 3220.AT		CODE N00173	7. ADMINISTERED BY (If other than Item 6) CODE	

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) TO ALL OFFERORS	<input checked="" type="checkbox"/>	9A. AMENDMENT OF SOLICITATION NO. N00173-02-R-AT04
	<input checked="" type="checkbox"/>	9B. DATED (SEE ITEM 11) 02 AUG 2002
	<input type="checkbox"/>	10A. MODIFICATION OF CONTRACT/ORDER NO.
	<input type="checkbox"/>	10B. DATED (SEE ITEM 11)
CODE	FACILITY CODE	

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers is extended, is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:
 (a) By completing items 8 and 15, and returning 2 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment your desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

N/A

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor is not, is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

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Any questions concerning this amendment should be directed to:
 Evangelina R. Toledo, Contract Specialist (202) 767-2021

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
<i>(Signature of person authorized to sign)</i>		<i>(Signature of Contracting Officer)</i>	

This amendment is issued to revise section B-1 and the Statement of Work and to answer questions raised by potential offerors.

1. The following is added to Section B-1, Optional Items:

0007 Virtex II XC2V3000-6 \$ \$ \$

2. Paragraph 3.3 a. of the Statement of Work is revised to read:

- a. Each pair of 14 bit digitized inputs shall be electrically routed to a Virtex II FPGA, XC2V1000, which the contractor must supply.

3. Questions and Answers:

(1) Response 5 states that NRL intends to use VME to transfer data to the real-time processors. The data rate per pair of channels is about 78+ MB/sec. In practical terms it is impossible to sustain that kind of data rate over VMEbus. The problem would extend further into the realm of the impossible if more than two channels were to be processed. Does NRL in fact intend to move the data in real-time to the signal processors, and if so what is the actual path they intend to use?

Answer: NRL does not intend to move the data in real-time over the VME bus to the Processors. Since we have VME based processors in-house, which can be used in this system, we require a VME based data acquisition system.

(2) If the data transfer is not real-time then why does the Government talk about real-time processors? Given VME as a data path the time taken to transfer data to the signal processors would far over ride any thing else.

Answer: The use of "Real-Time" to describe the processors that will be used for future capability, refer to the class of processors boards, NOT the particular use of the processor boards.

(3) As we understand the specifications the data acquisition is governed by external gating trigger. Waveform, dwell etc information may be passed to the system CPU via some data interface (network or otherwise). Is this correct?

Answer: The data acquisition system will also be the Radar controller. It will communicate with the system controller via RS-

232. The Radar controller will send information such as PRI, waveform selection, Range window selection, etc to the system controller. The system controller will also provide a LVTTTL signal to the FPGA to start and stop Data acquisition/data reduction/I Q generation.

(4) Figure 1. and 2. below show an alternate approach to a DAS.

The system is a stand alone data acquisition and recording system. Data can be simultaneously recorded and sent to the signal processing system via FPDP. The advantages of this system are as follows:

- a. The data recorder does not impact the signal processing system.
- b. The choice of signal processing architecture (as long as an FPDP interface is available) does not impact the data acquisition and recording system.
- c. The interconnect between the DAS and any signal processing system can be readily modified to interfaces such a Fiber Channel or Infiniband (just two examples) for future upgrades.
- d. The system is an open architecture system, in that neither the recording, archiving or data retrieval is bound by a particular hardware vendor's product.
- e. The complete system runs in a single operating environment.
- f. The system is upgradeable without affecting the application software.
- g. If the applications are written using POSIX standards the system is not even constrained to a given CPU type.
- h. The data is recorded to a file system making data retrieval a much simpler task, without the use of proprietary data bases, or pseudo block based file systems.
- i. The system is immensely scalable.
- j. The simplicity of the architecture (hardware and software) makes future modifications and upgrades easier.
- k. The system has a much simpler logistical life-cycle support plan because it minimizes the use of application specific hardware.
- l. Given that large numbers of current Radar systems are actively looking at standard servers for their signal processing needs, this system may in fact form a better fit for future system enhancements.

Given the above noted reasons, why would the Government not be willing to accept such a system?

Answer: The data acquisition system is required to be able to host the processing boards we have in-house which are VME based.

This alternate approach does not satisfy this capability and will not suit our needs. The flexibility to use existing hardware, which is VME based, is of greater concern than the issues addressed in items A-I because this is a system used for a research project and not a deployed system.

- (5) Ref. Amendment 0001, Answer #1: the answer of "NO" only referred to the question of whether PCI would be acceptable in lieu of VME. However, Answer#1 also made reference to "future Real-Time processing that will be based on Mercury's Race plus plus products" but does not explicitly add it as a SOW requirement. Additionally, Amendment 0002, Answer #4 refers to the Mercury product as "typical" vs. "based". This may seem like splitting hairs, but we believe in light of the discovered SOW inadvertent deletions thus far, and the rather ambiguous language in some of the SOW text, it would be worthwhile to clarify this area. Does the system require a data port with compatibility to the Mercury Race plus plus and SKY products?

Answer: No. The requirement is to have a VME based system to maintain compatibility with existing hardware. Any future processing will interact with the Data Acquisition System via the VME bus.

- (6) Ref. SOW 3.2 (h) and Amendment 0002, Answer #3: Both of the above references are to the Data Acquisition System receiver board's input frequency passband response, stated as 60 KHz to 300 MHz. However, the desired AD 6645 ADCs only specify a maximum of 270 MHz passband response. Will you please restate this spec as being either (1) the actual suystem passband response, or (2) the passband up to the input pins of the A/D converters?

Answer: The actual Radar system passband is 60 Khz to 300Mhz. The design was based on the preliminary AD6645 specification. The passband is now limited by the actual spec of the AD6645 which is 270Mhz. Leaving us with a usable system bandwidth of 60 Khz to 270 Mhz.

- (7) How much capacity should the host hard drive contain?

Answer: A minimum of 36 Gigabytes for the Hard Disk size.