

Task Order Plan (TOP)

Contract Number: NNM05AB50C
TO Title: SW support for Control & Signal Cond Elec Branch
TO Number: 37-030201 **Revision:** 08

Period of Performance: 10/02/2010 to 09/30/2011

MSFC Initiator: Dennis Smith

(b)(4)

Emergency: No

Revision 08: The purpose of this revision is to extend this task into Contract Year 6 of the NNM05AB50C ESTS contract. This revision defines and estimates work for the period October 2, 2010 through September 30, 2011. Additionally, the Schedule, Performance Plan and Risk Assessment have been revised to reflect changes in task activities for the new period of performance.

This revision also transitions work from 37-030303-06 to the new sub-element -JA to provide support for the ISS ECLSS STEFI Rack #3.

Sub-element	Sub-element Title	WBS	Status
37-030201-06	Multi-Protocol Modular Avionics (MPMA) Project Support	604746.01.98.08.16	Closed with Rev 4
37-030201-07	Fast Affordable Science & Technology Satellite (FAST-SAT) Project Support	591158.02.99.06.08	Closed with Rev 3
37-030201-08	Low-Resource Environmental Monitoring Package (LREMP) Project Support	698671.01.08.06.42	Closed with Rev 4
37-030201-09	Next Generation Advanced Video Guidance System (NGAVGS) Project Support	795369.04.02.08	Closed with Rev 5
37-030201-10	Lead-free Technology Experiment in Space Environment (LTESE) Project Support	939904.11.08	Closed with Rev 6
37-030201-11	ES32 Branch Support	763115.08.04.01.01	Closed with Rev 7
37-030201-12	Environmental Monitoring Package (EMP) Project Support	736466.09.01.08.09.07	Added with Rev 4
37-030201-13	Fast Affordable Science & Technology Satellite - Huntsville (FASTSAT-HSV) Project Support	595551.01.08.01.VP10.09	Added with Rev 4
37-030201-14	Small Multi-purpose Reconfigurable Technology (SMART) project Support	432938.09.01.08.10.06	Added with Rev 6

37-030201-15	HD-SDI Input Recording Imaging System (HIRIS) Project Support	522632.08.01.01	Added with Rev 7
37-030201-CI	High Speed Parachute Camera (HSPC) Project Support	136905.08.01.09	Closed with Rev 3
37-030201-JA	ISS ECLSS STEFI Rack #3 Support	401769.06.08.02.04.05	Transitioned from 37-030303-06 with Rev 8

Revision 07: This revision adds sub-element -15 to provide support for the High Definition Serial Digital Interface (HD-SDI) input Recording Imaging System (HIRIS) project through the end of the performance period.

In addition, sub-element -11 was closed and the remaining estimate was removed. All work scheduled for this sub-element has been completed.

Revision 06: This revision adds sub-element -14 to provide support for the Small Multi-purpose Reconfigurable Technology (SMART) project through the end of the performance period.

In addition, sub-element -10 was closed. All work scheduled for this sub-element has been completed.

This revision also reallocates resources for sub-elements -11, -12, and -13 due to changes in scheduled support activities such as the closure of sub-element -10, and the addition of sub-element -14.

Revision 05: The purpose of this revision is to extend this task into Contract Year 5 of the NNM05AB50C ESTS contract. This revision defines and estimates work for the period October 3, 2009 through October 14, 2010. Additionally, the Schedule, Performance Plan and Risk Assessment have been revised to reflect changes in task activities for the new period of performance.

This revision also closes sub-element -09. All work scheduled for this sub-element has been completed.

Revision 04: This revision adds sub-element -12 to provide support for the Environmental Monitoring Package (EMP) project and sub-element -13 to provide support for the Fast Affordable Science & Technology Satellite - Huntsville (FASTSAT-HSV) project through the end of this performance period. The Discussion of Skills Required (Sec. 3) has also been updated to reflect additional skills required for this project.

In addition, sub-element -06 and sub-element -08 were closed. All work scheduled for these two sub-elements has been completed.

This revision also reallocates resources for sub-elements -06, -08, -09, -10, and -11 due to changes in scheduled support activities such as the closure of sub-elements -06 and -08, and the addition of sub-elements -12 and -13.

This revision affects the following APO elements: None.

Revision 03: The purpose of this revision is to extend this task into Contract Year 4 of the NNM05AB50C ESTS contract. This revision defines and estimates work for the period September 27, 2008 through October 2, 2009. Additionally, the Schedule, Performance Plan and Risk Assessment have been revised to reflect changes in task activities for the new period of performance.

In addition, two sub-elements (-07 and -CI) were closed. All work scheduled for these two sub-elements has been completed.

This revision also adds sub-element -11 to provide support for the ES32 Branch through the end of this performance period.

This revision affects the following APO elements: None.

Revision 02: This revision reallocates resources for sub-elements 06, 08, 09, 10, and CI due to changes in scheduled support activities. For sub-elements 08 and CI this includes extending support through the end of the fiscal year. The summary result of these individual sub-element changes is a

slight net decrease in the overall planned \$ for the task order of \$4.7K. In addition, the title for sub-element 10 was changed to the actual name of the experiment.

Revision 01: This revision adds sub-element # -10 to provide support to the Lead-Free Technology in Space Environment (LTSE) Experiment through the end of this performance period. Sub-elements 07, 08, and CI were also extended for one month to provide additional support as necessary.

Revision 00: This Task Order (TO) is a continuation of work being performed on TO # 31-020201 of the NNM05AB50C ESTS contract. This TO realigns work performed previously in EI22, and now supports ES32 within the new ED organizational structure. This TO defines and estimates work for the period 1 March 2008 through 26 September 2008. TO # 31-020201 will be revised for closure in March with an effective date of 29 February 2008.

1.0 Task Order Description & Objectives

(12) Environmental Monitoring Package (EMP) Project Support

The Jacobs ESTS Group will provide software development, documentation and testing support to the Control and Signal Conditioning Electronics Branch (ES32) for this subelement. This support will include but not be limited to: maintenance and upgrades to software, embedded firmware code development, Graphical User Interface (GUI) software code development, and system level testing.

(13) Fast Affordable Science & Technology Satellite - Huntsville (FASTSAT-HSV) Project Support

The Jacobs ESTS Group will provide software development, documentation and testing support to the Control and Signal Conditioning Electronics Branch (ES32) for this subelement. This support will include but not be limited to: maintenance and upgrades to software, embedded firmware code development, GUI software code development, and system level testing.

(14) Small Multi-purpose Reconfigurable Technology (SMART) Project Support

The Jacobs ESTS Group will provide software development, documentation and testing support to the Control and Signal Conditioning Electronics Branch (ES32) for this subelement. This support will include but not be limited to: maintenance and upgrades to software, embedded firmware code development, GUI software code development, and system level testing.

(15) High Definition Serial Digital Interface (HD-SDI) Input Recording Imaging System (HIRIS) Project Support

The Jacobs ESTS Group will provide software development, documentation and testing support to the Control and Signal Conditioning Electronics Branch (ES32) for this subelement. This support will include but not be limited to: maintenance and upgrades to software, embedded firmware code development, GUI software code development, and system level testing.

(JA) ISS ECLSS STEFI Rack #3 Support

The Jacobs ESTS Group will provide software development, integration, and test support of Special Test Equipment (STE) and developmental hardware for the Control and Signal Conditioning Electronics Branch (ES32). This support will include modifying and enhancing existing Special Test Equipment for Firmware Controller Assembly (FCA) Interfaces (STEFI) code as well as the GUI software. This code will become a part of the new & upgraded STEFI Rack # 3. Modifications to the rack will be new features defined as necessary by the Environmental Control and Life Support System (ECLSS) project to include but not limited to a new, faster processor, new operating system, updated analog and discrete interface drivers, etc. Support will include maintenance and possible changes to STEFI Rack # 1 & Rack # 2 code and test support to re-verify the system. Also included is support for the acceptance of the software package, software documentation as required by the project, and integrated rack test planning, performance, and reporting.

2.0 Technical Approach (Including required input, guidelines & assumptions)

(12) Environmental Monitoring Package (EMP) Project Support

To perform this subelement, the Jacobs ESTS Group will develop software upgrades, updates to software design documents, and other supporting documentation. The Jacobs ESTS Group will develop and document software verification requirements for this subelement.

The Jacobs ESTS Group will support and participate in reviews, working groups, and team meetings in coordination with ES32.

(13) Fast Affordable Science & Technology Satellite - Huntsville (FASTSAT-HSV) Project Support

To perform this subelement, the Jacobs ESTS Group will develop software upgrades, updates to software design documents, and other supporting documentation. The Jacobs ESTS Group will develop and document software verification requirements for this subelement.

The Jacobs ESTS Group will support and participate in reviews, working groups, and team meetings in coordination with ES32.

(14) Small Multi-purpose Reconfigurable Technology (SMART) Project Support

To perform this subelement, the Jacobs ESTS Group will develop software upgrades, updates to software design documents, and other supporting documentation. The Jacobs ESTS Group will develop and document software verification requirements for this subelement.

The Jacobs ESTS Group will support and participate in reviews, working groups, and team meetings in coordination with ES32.

(15) High Definition Serial Digital Interface (HD-SDI) Input Recording Imaging System (HIRIS) Project Support

To perform this subelement, the Jacobs ESTS Group will develop software upgrades, updates to software design documents, and other supporting documentation. The Jacobs ESTS Group will develop and document software verification requirements for this subelement.

The Jacobs ESTS Group will support and participate in reviews, working groups, and team meetings in coordination with ES32.

(JA) ISS ECLSS STEFI Rack #3 Support

To perform this subelement, the Jacobs ESTS Group will provide, but not be limited to, support to the selection of the tester hardware where that hardware would have an impact on the code development process, evaluation of the planned upgrades to the STEFI rack, evaluation of test performance on STEFI Rack # 1 & # 2 to determine if updates are needed and could be applied to STEFI Rack # 3, updates to the Graphical User Interface (GUI) interface, software (GUI & tester code) development and upgrade, development of software code to support the build of the new STEFI # 3 rack, document the changes applied and provide tracking and traceability for those changes, integrate the software into the tester hardware when available, perform tests for development and acceptance, document the test results in report format, and document the code in program requested documentation.

The Jacobs ESTS Group will support ECLSS STEFI Team meetings, ES32 Team meetings, applicable project reviews, and Technical Interchange Meetings (TIMs) as necessary to fulfill the responsibilities of this subelement.

3.0 Discussion of Skills Required

Personnel supporting this TO must (b)(4)

(b)(4) Real time embedded systems software development experience is required. Expertise in the programming languages C, Java, Very High Speed Integrated Circuits (VHSIC) hardware description language (VHDL), and Labview is required. Familiarity with the standard office automation software of Microsoft Project, Excel, Word and PowerPoint is helpful.

4.0 Special Tools Required

None Identified.

5.0 Participating Subcontractors

None Identified.

6.0 Milestones & Deliverables

An activity report will be delivered each month. Deliverables for new code developed will include: source code listings, drivers, executables, and software libraries (electronic). Other deliverables include: test reports, inputs to software version description documents, and test data analysis results.

7.0 Special Considerations (Recruiting, Special Equipment / Material, Safety, etc.)

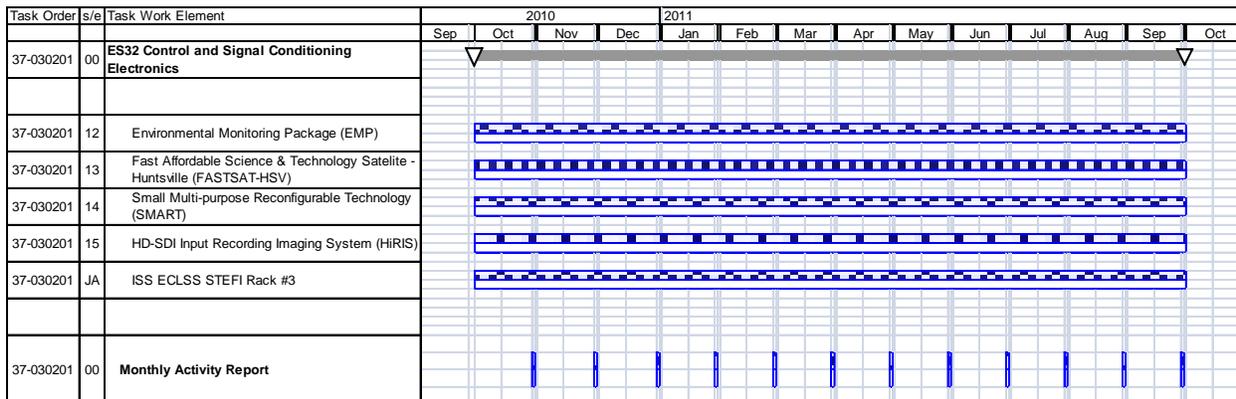
None Identified.

8.0 Work Shelf

The following activities could be accomplished as part of the Task Order performance by personnel that are temporarily available due to program or funding delays on other Tasks. Specific assignments will be coordinated with the Task Initiator to ensure appropriate skills and experience.

TO/Sub-element	Description	Due Date	Skill
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9.0 Schedule



ESTS Contract Task Order Request Performance Plan

Task Order Title: [SW support for Control & Signal Cond Elec Branch](#)

Task Order Number: [37-030201](#) Revision: 08

Category	Weighting Technical %	End of Period Technical Score
Technical Objectives	65%	X 65% = Justification
1) Develop and maintain embedded control firmware. 2) Develop and maintain user interface software. 3) Provide support for component and system level testing. 4) Prepare documentation for firmware and software development		
Schedule Objectives (Milestones)	Weighting Schedule % 10% (min 10%)	X 10% = Justification
1) Monthly activity reports. 2) Firmware products per project schedule. All software documentation, and other products will be provided in a manner to support branch and project milestones.		
Cost (actual vs. negotiated)	Weighting Cost% 25% (min.25%)	X 25% = Justification
	Weighting Total % 100.00%	Total Score

Technical, Schedule, and Cost Grading Scale

Score	Description
9.0-10.0	Exceeded TO Performance Plan objectives resulting in major benefit(s)
8.0-8.9	Exceeded TO Performance Plan objectives resulting in modest benefit(s)
7.0-7.9	Met TO Performance Plan objectives
3.0-6.9	Did not meet all TO Performance Plan objectives resulting in minimal impact or requiring additional agency funds
0.0-2.9	Did not meet TO Performance Plan objectives resulting in substantial impact and/or requiring additional agency funds

ESTS Contract Task Order Request Performance Plan

Task Order Number: [SW support for Control & Signal Cond Elec Branch](#)

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Comments:

Risk Assessment

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Task Order Risk Assessment to Cost, Technical, and Schedule

List identified risk associated with Task Order performance as related to task cost, technical, and schedule. Classify the risk(s) according to probability of occurrence and impact as defined below and enter the risk into risk matrix.

Risk	Risk Type	Probability (1-4)	Impact (1-4)	Risk Description
Risk C1	Cost			No cost risks have been identified for any sub-element.
Risk C2	Cost			
Risk T1	Technical			No technical risks have been identified for any sub-element.
Risk T2	Technical			
Risk S1	Schedule			No schedule risks have been identified for any sub-element.
Risk S2	Schedule			

*Note: See page 2 for risk mitigation plan for those risks which are Primary Risk Drivers.

