AUTHORIZED FEDERAL SUPPLY SERVICE
INFORMATION TECHNOLOGY SCHEDULE PRICELIST
GENERAL PURPOSE COMMERCIAL INFORMATION TECHNOLOGY EQUIPMENT, SOFTWARE AND SERVICES

Microsatellite Components and Professional Services for Communications, Power Supply, Regulation and Generation, Command and Data Handling, Attitude Determination and Control, Avionics

Special Item No. 132-8 **PURCHASE OF EQUIPMENT**
Special Item No. 132-12 **MAINTENANCE, REPAIR SERVICE AND REPAIR PARTS/SPARE PARTS**
Special Item No. 132-51 - **INFORMATION TECHNOLOGY (IT) PROFESSIONAL SERVICES**

SPACEQUEST, LTD.
3554 Chain Bridge Road, Suite 103
Fairfax, VA 22030
(703) 273-7010 (Phone)
(703) 273-7011 (Fax)
www.spacequest.com

Business Size/Status: Small Business

Contract Number: **GS-35F-0359T**

Period Covered by Contract: March 30, 2007 through March 29, 2012

GENERAL SERVICES ADMINISTRATION

FEDERAL SUPPLY SERVICE

Pricelist current through Modification #_____, dated _____.

Products and ordering information in this Authorized FSS Information Technology Schedule Pricelist are also available on the GSA Advantage! System. Agencies can browse GSA Advantage! by accessing the Federal Supply Service's Home Page via the Internet at:

http://www.fss.gsa.gov/

Special Item No. 132-8 PURCHASE OF EQUIPMENT

FSC Class 6145 – Wire and Cable, Electrical
FSC Class 5820 – Radio and Television Communication Equipment, Except Airborne
Two-Way Radio Transmitters/Receivers/Antennas
Microwave Radio Equipment/Antennas and Waveguides
Satellite Communications Equipment
FSC Class5895 – Miscellaneous Communication Equipment
Miscellaneous Communications Equipment
Installation for equipment offered under SIN 132-8 (FPDS code N070)

Special Item No. 132-12 MAINTENANCE, REPAIR SERVICE AND REPAIR PARTS/SPARE PARTS

FPDS Code J070 – Maintenance and Repair Service
Repair Service
(See FSC Class for Basic Equipment)
Repair Parts/Spare Parts

Special Item No. 132-51 - INFORMATION TECHNOLOGY (IT) PROFESSIONAL SERVICES

FPDS Code D302 - IT Systems Development Services
FPDS Code D306 - IT Systems Analysis Services
FPDS Code D399 - Other Information Technology Services, Not Elsewhere Classified

Note 1: All non-professional labor categories must be incidental to and used solely to support hardware, software and/or professional services, and cannot be purchased separately.

Note 2: Offerors and Agencies are advised that the Group 70 – Information Technology Schedule is not to be used as a means to procure services which properly fall under the Brooks Act. These services include, but are not limited to, architectural, engineering, mapping, cartographic production, remote sensing, geographic information systems, and related services. FAR 36.6 distinguishes between mapping services of an A/E nature and mapping services which are not connected nor incidental to the traditionally accepted A/E Services.

Note 3: This solicitation is not intended to solicit for the reselling of IT Professional Services, except for the provision of implementation, maintenance, integration, or training services in direct support of a product. Under such circumstances the services must be performance by the publisher or manufacturer or one of their authorized agents.

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INFORMATION FOR ORDERING ACTIVITIES
APPLICABLE TO ALL SPECIAL ITEM NUMBERS

SPECIAL NOTICE TO AGENCIES: Small Business Participation

SBA strongly supports the participation of small business concerns in the Federal Supply Schedules Program. To enhance Small Business Participation SBA policy allows agencies to include in their procurement base and goals, the dollar value of orders expected to be placed against the Federal Supply Schedules, and to report accomplishments against these goals.

For orders exceeding the micropurchase threshold, FAR 8.404 requires agencies to consider the catalogs/pricelists of at least three schedule contractors or consider reasonably available information by using the GSA Advantage!™ on-line shopping service (www.fss.gsa.gov). The catalogs/pricelists, GSA Advantage!™ and the Federal Supply Service Home Page (www.fss.gsa.gov) contain information on a broad array of products and services offered by small business concerns.

This information should be used as a tool to assist ordering activities in meeting or exceeding established small business goals. It should also be used as a tool to assist in including small, small disadvantaged, and women-owned small businesses among those considered when selecting pricelists for a best value determination.

For orders exceeding the micropurchase threshold, customers are to give preference to small business concerns when two or more items at the same delivered price will satisfy their requirement.

1. GEOGRAPHIC SCOPE OF CONTRACT

Domestic delivery is delivery within the 48 contiguous states, Alaska, Hawaii, Puerto Rico, Washington, DC, and U.S. Territories. Domestic delivery also includes a port or consolidation point, within the aforementioned areas, for orders received from overseas activities.

Overseas delivery is delivery to points outside of the 48 contiguous states, Washington, DC, Alaska, Hawaii, Puerto Rico, and U.S. Territories.

Offerors are requested to check one of the following boxes:
[ ] The Geographic Scope of Contract will be domestic and overseas delivery.
[ ] The Geographic Scope of Contract will be overseas delivery only.
[√] The Geographic Scope of Contract will be domestic delivery only.

2. CONTRACTOR'S ORDERING ADDRESS AND PAYMENT INFORMATION

ORDERING ADDRESS:

SpaceQuest, Ltd.
3554 Chain Bridge Road
Suite 103
Fairfax, VA 22030
Phone: (703) 273-7010
Fax: (703) 273-7011
E-Mail: info@spacequest.com

Contractors are required to accept credit cards for payments equal to or less than the micro-purchase threshold for oral or written delivery orders. Credit cards will be acceptable for payment above the micro-purchase threshold. In addition, bank account information for wire transfer payments will be shown on the invoice.

The following telephone number(s) can be used by ordering activities to obtain technical and/or ordering assistance:

(703) 273-7010

3. LIABILITY FOR INJURY OR DAMAGE

The Contractor shall not be liable for any injury to ordering activity personnel or damage to ordering activity property arising from the use of equipment maintained by the Contractor, unless such injury or damage is due to the fault or negligence of the Contractor.

4. STATISTICAL DATA FOR GOVERNMENT ORDERING OFFICE COMPLETION OF STANDARD FORM 279

Block 9: G. Order/Modification Under Federal Schedule
Block 16: Data Universal Numbering System (DUNS) Number: 92949-9754
Block 30: Type of Contractor B. Other Small Business
Block 31: Woman-Owned Small Business – No
Block 36: Contractor's Taxpayer Identification Number (TIN): 541735501

4a. CAGE Code: 083U1
4b. Contractor has registered with the Central Contractor Registration Database.

5. FOB DESTINATION

6. DELIVERY SCHEDULE

a. TIME OF DELIVERY: The Contractor shall deliver to destination within the number of calendar days after receipt of order (ARO), as set forth below:

SPECIAL ITEM NUMBER	DELIVERY TIME (Days ARO)
132-8	120 Days or as negotiated between Contractor and Ordering Agency
132-12	As negotiated between the Contractor and Ordering Agency
132-51	As negotiated between the Contractor and Ordering Agency

b. URGENT REQUIREMENTS: When the Federal Supply Schedule contract delivery period does not meet the bona fide urgent delivery requirements of an ordering activity, ordering activities are encouraged, if time permits, to contact the Contractor for the purpose of obtaining accelerated delivery. The Contractor shall reply to the inquiry within 3 workdays after receipt. (Telephonic replies shall be confirmed by the Contractor in writing.) If the Contractor offers an accelerated delivery time acceptable to the ordering activity, any order(s) placed pursuant to the agreed upon

accelerated delivery time frame shall be delivered within this shorter delivery time and in accordance with all other terms and conditions of the contract.

7. DISCOUNTS: PRICES SHOWN ARE NET PRICES; BASIC DISCOUNTS HAVE BEEN DEDUCTED.

a. Prompt Payment: None, Net 30 days from receipt of invoice or date of acceptance, whichever is later.
b. Quantity: None, unless otherwise specified in the Pricelist
c. Dollar Volume: As specified in the Pricelist
d.. Government Educational Institutions are offered the same discounts as all other Government customers.
e. Other: None, unless otherwise specified in the Pricelist

8. TRADE AGREEMENTS ACT OF 1979, AS AMENDED

All items are U.S. made end products, designated country end products, Caribbean Basin country end products, Canadian end products, or Mexican end products as defined in the Trade Agreements Act of 1979, as amended.

9. STATEMENT CONCERNING AVAILABILITY OF EXPORT PACKING: *Not Offered*

10. SMALL REQUIREMENTS: The minimum dollar value of orders to be issued is $100.00.

11. MAXIMUM ORDER (All dollar amounts are exclusive of any discount for prompt payment.)

The Maximum Order value for the following Special Item Numbers (SINs) is $500,000:

Special Item Number 132-8 -	Purchase of Equipment
Special Item Number 132-12 –	Maintenance of Equipment, Repair Service, and Repair Parts/Spare Parts
Special Item Number 132-33 -	Perpetual Software Licenses
Special Item Number 132-51 -	Information Technology (IT) Professional Services

12. ORDERING PROCEEDURES FOR FEDERAL SUPPLY SCHEDULE CONTRACTS

Ordering activities shall use the ordering procedures of Federal Acquisition Regulation (FAR) 8.405 when placing an order or establishing a BPA for supplies or services. These procedures apply to all schedules.

a. FAR 8.405-1 Ordering procedures for supplies, and services not requiring a statement of work.

b. FAR 8.405-2 Ordering procedures for services requiring a statement of work.

13. FEDERAL INFORMATION TECHNOLOGY/TELECOMMUNICATION STANDARDS REQUIREMENTS: Ordering activities acquiring products from this Schedule must comply with the provisions of the Federal Standards Program, as appropriate (reference: NIST Federal Standards Index). Inquiries to determine whether or not specific products listed herein comply with Federal Information Processing Standards (FIPS) or Federal Telecommunication Standards (FED-STDS), which are cited by ordering activities, shall be responded to promptly by the Contractor.

13.1 FEDERAL INFORMATION PROCESSING STANDARDS PUBLICATIONS (FIPS PUBS): Information Technology products under this Schedule that do not conform to Federal Information Processing Standards (FIPS) should not be acquired unless a waiver has been granted in accordance with the applicable "FIPS Publication." Federal Information Processing Standards Publications (FIPS PUBS) are issued by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST), pursuant to National Security Act. Information concerning their availability and applicability should be obtained from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161. FIPS PUBS include voluntary standards when these are adopted for Federal use. Individual orders for FIPS PUBS should be referred to the NTIS Sales Office, and orders for subscription service should be referred to the NTIS Subscription Officer, both at the above address, or telephone number (703) 487-4650.

13.2 FEDERAL TELECOMMUNICATION STANDARDS (FED-STDS): Telecommunication products under this Schedule that do not conform to Federal Telecommunication Standards (FED-STDS) should not be acquired unless a waiver has been granted in accordance with the applicable "FED-STD." Federal Telecommunication Standards are issued by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST), pursuant to National Security Act. Ordering information and information concerning the availability of FED-STDS should be obtained from the GSA, Federal Supply Service, Specification Section, 470 East L'Enfant Plaza, Suite 8100, SW, Washington, DC 20407, telephone number (202)619-8925. Please include a self-addressed mailing label when requesting information by mail. Information concerning their applicability can be obtained by writing or calling the U.S. Department of Commerce, National Institute of Standards and Technology, Gaithersburg, MD 20899, telephone number (301)975-2833.

14. CONTRACTOR TASKS / SPECIAL REQUIREMENTS (C-FSS-370) (NOV 2001)

(a) Security Clearances: The Contractor may be required to obtain/possess varying levels of security clearances in the performance of orders issued under this contract. All costs associated with obtaining/possessing such security clearances should be factored into the price offered under the Multiple Award Schedule.

(b) Travel: The Contractor may be required to travel in performance of orders issued under this contract. Allowable travel and per diem charges are governed by Pub .L. 99-234 and FAR Part 31, and are reimbursable by the ordering agency or can be priced as a fixed price item on orders placed under the Multiple Award Schedule. The Industrial Funding Fee does NOT apply to travel and per diem charges.

NOTE: Refer to FAR Part 31.205-46 Travel Costs, for allowable costs that pertain to official company business travel in regards to this contract.

(c) Certifications, Licenses and Accreditations: As a commercial practice, the Contractor may be required to obtain/possess any variety of certifications, licenses and accreditations for specific FSC/service code classifications offered. All costs associated with obtaining/ possessing such certifications, licenses and accreditations should be factored into the price offered under the Multiple Award Schedule program.

(d) Insurance: As a commercial practice, the Contractor may be required to obtain/possess insurance coverage for specific FSC/service code classifications offered. All costs associated with obtaining/possessing such insurance should be factored into the price offered under the Multiple Award Schedule program.

(e) Personnel: The Contractor may be required to provide key personnel, resumes or skill category descriptions in the performance of orders issued under this contract. Ordering activities may require agency approval of additions or replacements to key personnel.

(f) Organizational Conflicts of Interest: Where there may be an organizational conflict of interest as determined by the ordering agency, the Contractor's participation in such order may be restricted in accordance with FAR Part 9.5.

(g) Documentation/Standards: The Contractor may be requested to provide products or services in accordance with rules, regulations, OMB orders, standards and documentation as specified by the agency's order.

(h) Data/Deliverable Requirements: Any required data/deliverables at the ordering level will be as specified or negotiated in the agency's order.

(i) Government-Furnished Property: As specified by the agency's order, the Government may provide property, equipment, materials or resources as necessary.

(j) Availability of Funds: Many Government agencies' operating funds are appropriated for a specific fiscal year. Funds may not be presently available for any orders placed under the contract or any option year. The Government's obligation on orders placed under this contract is contingent upon the availability of appropriated funds from which payment for ordering purposes can be made. No legal liability on the part of the Government for any payment may arise until funds are available to the ordering Contracting Officer.

15. CONTRACT ADMINISTRATION FOR ORDERING ACTIVITIES: Any ordering activity, with respect to any one or more delivery orders placed by it under this contract, may exercise the same rights of termination as might the GSA Contracting Officer under provisions of FAR 52.212-4, paragraphs (l) Termination for the ordering activity's convenience, and (m) Termination for Cause (See C.1.)

16. GSA ADVANTAGE!

GSA Advantage! is an on-line, interactive electronic information and ordering system that provides on-line access to vendors' schedule prices with ordering information. GSA Advantage! will allow the user to perform various searches across all contracts including, but not limited to:

(1) Manufacturer;
(2) Manufacturer's Part Number; and
(3) Product categories.

Agencies can browse GSA Advantage! by accessing the Internet World Wide Web utilizing a browser (ex.: NetScape). The Internet address is http://www.fss.gsa.gov/.

17. PURCHASE OF OPEN MARKET ITEMS

NOTE: Open Market Items are also known as incidental items, noncontract items, non-Schedule items, and items not on a Federal Supply Schedule contract. ODCs (Other Direct Costs) are not part of this contract and should be treated as open market purchases. Ordering Activities procuring open market items must follow FAR 8.402(f).

For administrative convenience, an ordering activity contracting officer may add items not on the Federal Supply Multiple Award Schedule (MAS) -- referred to as open market items -- to a Federal Supply Schedule blanket purchase agreement (BPA) or an individual task or delivery order, **only if-**

(1) All applicable acquisition regulations pertaining to the purchase of the items not on the Federal Supply Schedule have been followed (e.g., publicizing (Part 5), competition requirements (Part 6), acquisition of commercial items (Part 12), contracting methods (Parts 13, 14, and 15), and small business programs (Part 19));

(2) The ordering activity contracting officer has determined the price for the items not on the Federal Supply Schedule is fair and reasonable;

(3) The items are clearly labeled on the order as items not on the Federal Supply Schedule; and

(4) All clauses applicable to items not on the Federal Supply Schedule are included in the order.

18. CONTRACTOR COMMITMENTS, WARRANTIES AND REPRESENTATIONS

a. For the purpose of this contract, commitments, warranties and representations include, in addition to those agreed to for the entire schedule contract:

   (1) Time of delivery/installation quotations for individual orders;

   (2) Technical representations and/or warranties of products concerning performance, total system performance and/or configuration, physical, design and/or functional characteristics and capabilities of a product/equipment/ service/software package submitted in response to requirements which result in orders under this schedule contract.

   (3) Any representations and/or warranties concerning the products made in any literature, description, drawings and/or specifications furnished by the Contractor.

b. The above is not intended to encompass items not currently covered by the GSA Schedule contract.

19. OVERSEAS ACTIVITIES

The terms and conditions of this contract shall apply to all orders for installation, maintenance and repair of equipment in areas listed in the pricelist outside the 48 contiguous states and the District of Columbia, except as indicated below: N/A

Upon request of the Contractor, the ordering activity may provide the Contractor with logistics support, as available, in accordance with all applicable ordering activity regulations. Such ordering activity support will be provided on a reimbursable basis, and will only be provided to the Contractor's technical personnel whose services are exclusively required for the fulfillment of the terms and conditions of this contract.

20. BLANKET PURCHASE AGREEMENTS (BPAs)

The use of BPAs under any schedule contract to fill repetitive needs for supplies or services is allowable. BPAs may be established with one or more schedule contractors. The number of BPAs to be established is within the discretion of the ordering activity establishing the BPA and should be based on a strategy that is expected to maximize the effectiveness of the BPA(s). Ordering activities shall follow FAR 8.405-3 when creating and implementing BPA(s).

21. CONTRACTOR TEAM ARRANGEMENTS

Contractors participating in contractor team arrangements must abide by all terms and conditions of their respective contracts. This includes compliance with Clauses 552.238-74, Industrial Funding Fee and Sales Reporting, i.e., each contractor (team member) must report sales and remit the IFF for all products and services provided under its individual contract.

22. INSTALLATION, DEINSTALLATION, REINSTALLATION

The Davis-Bacon Act (40 U.S.C. 276a-276a-7) provides that contracts in excess of $2,000 to which the United States or the District of Columbia is a party for construction, alteration, or repair (including painting and decorating) of public buildings or public works with the United States, shall contain a clause that no laborer or mechanic employed directly upon the site of the work shall received less than the prevailing wage rates as determined by the Secretary of Labor. The requirements of the Davis-Bacon Act do not apply if the construction work is incidental to the furnishing of supplies, equipment, or services. For example, the requirements do not apply to simple installation or alteration of a public building or public work that is incidental to furnishing supplies or equipment under a supply contract. However, if the construction, alteration or repair is segregable and exceeds $2,000, then the requirements of the Davis-Bacon Act applies.

The ordering activity issuing the task order against this contract will be responsible for proper administration and enforcement of the Federal labor standards covered by the Davis-Bacon Act. The proper Davis-Bacon wage determination will be issued by the ordering activity at the time a request for quotations is made for applicable construction classified installation, deinstallation, and reinstallation services under SIN 132-8.

23. SECTION 508 COMPLIANCE.

If applicable, Section 508 compliance information on the supplies and services in this contract are available in Electronic and Information Technology (EIT) at the following: www.spacequest.com

The EIT standard can be found at: www.Section508.gov/.

24. PRIME CONTRACTOR ORDERING FROM FEDERAL SUPPLY SCHEDULES.

Prime Contractors (on cost reimbursement contracts) placing orders under Federal Supply Schedules, on behalf of an ordering activity, shall follow the terms of the applicable schedule and authorization and include with each order –

(a) A copy of the authorization from the ordering activity with whom the contractor has the prime contract (unless a copy was previously furnished to the Federal Supply Schedule contractor); and

(b) The following statement:

This order is placed under written authorization from _____ dated _____. In the event of any inconsistency between the terms and conditions of this order and those of your Federal Supply Schedule contract, the latter will govern.

25. INSURANCE-WORK ON A GOVERNMENT INSTALLATION (JAN 1997)(FAR 52.228-5)

(a) The Contractor shall, at its own expense, provide and maintain during the entire performance of this contract, at least the kinds and minimum amounts of insurance required in the Schedule or elsewhere in the contract.

(b) Before commencing work under this contract, the Contractor shall notify the Contracting Officer in writing that the required insurance has been obtained. The policies evidencing required insurance shall contain an endorsement to the effect that any cancellation or any material change adversely affecting the Government's interest shall not be effective—

(1) For such period as the laws of the State in which this contract is to be performed prescribe; or

(2) Until 30 days after the insurer or the Contractor gives written notice to the Contracting Officer, whichever period is longer.

(c) The Contractor shall insert the substance of this clause, including this paragraph (c), in subcontracts under this contract that require work on a Government installation and shall require subcontractors to provide and maintain the insurance required in the Schedule or elsewhere in the contract. The Contractor shall maintain a copy of all subcontractors' proofs of required insurance, and shall make copies available to the Contracting Officer upon request.

26. SOFTWARE INTEROPERABILITY.

Offerors are encouraged to identify within their software items any component interfaces that support open standard interoperability. An item's interface may be identified as interoperable on the basis of participation in a Government agency-sponsored program or in an independent organization program. Interfaces may be identified by reference to an interface registered in the component registry located at http://www.core.gov.

27. ADVANCE PAYMENTS

A payment under this contract to provide a service or deliver an article for the United States Government may not be more than the value of the service already provided or the article already delivered. Advance or pre-payment is not authorized or allowed under this contract. (31 U.S.C. 3324).

TERMS AND CONDITIONS APPLICABLE TO PURCHASE OF GENERAL PURPOSE COMMERCIAL INFORMATION TECHNOLOGY EQUIPMENT (SPECIAL ITEM NUMBER 132-8)

1. MATERIAL AND WORKMANSHIP

All equipment furnished hereunder must satisfactorily perform the function for which it is intended.

2. ORDER

Written orders, EDI orders (GSA Advantage! and FACNET), credit card orders, and orders placed under blanket purchase agreements (BPA) agreements shall be the basis for purchase in accordance with the provisions of this contract. If time of delivery extends beyond the expiration date of the contract, the Contractor will be obligated to meet the delivery and installation date specified in the original order.

For credit card orders and BPAs, telephone orders are permissible.

3. TRANSPORTATION OF EQUIPMENT

FOB DESTINATION. Prices cover equipment delivery to destination, for any location within the geographic scope of this contract. Where delivery service is requested by freight or express common carrier, Contractor will pay such charge and add the actual cost thereof as a separate item to the invoice. Such shipments will be marked by the Contractor "Delivery Service Requested" on the bill of lading.

4. INSTALLATION AND TECHNICAL SERVICES

a. INSTALLATION. When the equipment provided under this contract is not normally self-installable, the Contractor's technical personnel shall be available to the ordering activity, at the ordering activity's location, to install the equipment and to train ordering activity personnel in the use and maintenance of the equipment. The charges, if any, for such services are listed below, or in the price schedule:

The equipment offered hereunder is normally self-installable. At the request of customer, installation can be provided by Contractor utilizing the rates in the Contract under Special Item Number 132-12.

b. **INSTALLATION, DEINSTALLATION, REINSTALLATION.** The Davis-Bacon Act (40 U.S.C. 276a-276a-7) provides that contracts in excess of $2,000 to which the United States or the District of Columbia is a party for construction, alteration, or repair (including painting and decorating) of public buildings or public works with the United States, shall contain a clause that no laborer or mechanic employed directly upon the site of the work shall received less than the prevailing wage rates as determined by the Secretary of Labor. The requirements of the Davis-Bacon Act do not apply if the construction work is incidental to the furnishing of supplies,

equipment, or services. For example, the requirements do not apply to simple installation or alteration of a public building or public work that is incidental to furnishing supplies or equipment under a supply contract. However, if the construction, alteration or repair is segregable and exceeds $2,000, then the requirements of the Davis-Bacon Act applies.

The ordering activity issuing the task order against this contract will be responsible for proper administration and enforcement of the Federal labor standards covered by the Davis-Bacon Act. The proper Davis-Bacon wage determination will be issued by the ordering activity at the time a request for quotations is made for applicable construction classified installation, deinstallation, and reinstallation services under SIN 132-8.

c. OPERATING AND MAINTENANCE MANUALS. The Contractor shall furnish the ordering activity with one (1) copy of all operating and maintenance manuals which are normally provided with the equipment being purchased.

5. INSPECTION/ACCEPTANCE

The Contractor shall only tender for acceptance those items that conform to the requirements of this contract. The ordering activity reserves the right to inspect or test any equipment that has been tendered for acceptance. The ordering activity may require repair or replacement of nonconforming equipment at no increase in contract price. The ordering activity must exercise its post-acceptance rights (1) within a reasonable time after the defect was discovered or should have been discovered; and (2) before any substantial change occurs in the condition of the item, unless the change is due to the defect in the item.

6. WARRANTY

a. Unless specified otherwise in this contract, the Contractor's standard commercial warranty as stated in the contract's commercial pricelist will apply to this contract.

SpaceQuest, Ltd. ("Contractor") warrants items supplied hereunder to be free from defects in material and workmanship and will conform to and perform in accordance with the specifications stated in the contract. Contractor's warranty will commence upon receipt of the goods and will continue for a period of ninety (90) days. During the warranty period, Contractor will, at its option, either repair or replace items not conforming to the above warranty. Contractor will not repair or replace items damaged from accident, abuse or mishandling (including improper storage or installation), or are modified or repaired other than by Contractor.

Contractor will inspect the returned item to verify that it is eligible for repair or replacement. Such eligibility will be based solely on whether the item is, in fact, defective and whether the claim is timely, and Contractor's approval will not be unreasonably withheld. For items eligible for repair or replacement under warranty, Contractor will bear the transportation costs of returning the products to and from the repair facility, or the costs involved with Contractor personnel traveling to the ordering activity facility for the purpose of repairing the product onsite, during the 90 day warranty period. Contractor's standard turnaround time for any item covered under warranty is two (2) weeks. For any product not eligible or covered by the warranty, Contractor shall send an estimate to Purchaser for the cost of repair or replacement and time for completion of the work.

Without limiting the foregoing, in no case will Contractor be liable for deinstallation of any defective product or installation of any repaired or replacement product. This Limited Warranty is

the exclusive remedy available to the Purchaser. Contractor shall not be liable for any direct, indirect, incidental, consequential, special, punitive, or other damages in connection with any cause of action, whether in contract, tort, or otherwise.

The express warranty in this Limited Warranty is in lieu of any other warranty, express or implied. Without limiting the foregoing, Contractor disclaims the implied warranty of merchantability and any implied warranty of fitness for a particular purpose.

Contractor shall not be responsible for failure or delays in deliveries, repair or replacement due to fire, strikes, breakdowns, acts of God, failure of carriers, inability to secure required materials, or other causes beyond Contractor's control known as Force Majeure.

b. The Contractor warrants and implies that the items delivered hereunder are merchantable and fit for use for the particular purpose described in this contract.

c. Limitation of Liability. Except as otherwise provided by an express or implied warranty, the Contractor will not be liable to the ordering activity for consequential damages resulting from any defect or deficiencies in accepted items.

d. If inspection and repair of defective equipment under this warranty will be performed at the Contractor's plant, the address is as follows:

SpaceQuest, Ltd.
3554 Chain Bridge Road
Suite 103
Fairfax, VA 22030

7. PURCHASE PRICE FOR ORDERED EQUIPMENT

The purchase price that the ordering activity will be charged will be the ordering activity purchase price in effect at the time of order placement, or the ordering activity purchase price in effect on the installation date (or delivery date when installation is not applicable), whichever is less.

8. RESPONSIBILITIES OF THE CONTRACTOR

The Contractor shall comply with all laws, ordinances, and regulations (Federal, State, City or otherwise) covering work of this character, and shall include all costs, if any, of such compliance in the prices quoted in this offer.

9. TRADE-IN OF INFORMATION TECHNOLOGY EQUIPMENT

When an ordering activity determines that Information Technology equipment will be replaced, the ordering activity shall follow the contracting policies and procedures in the Federal Acquisition Regulation (FAR), the policies and procedures regarding disposition of information technology excess personal property in the Federal Property Management Regulations (FPMR) (41 CFR 101-43.6), and the policies and procedures on exchange/sale contained in the FPMR (41 CFR part 101-46).

TERMS AND CONDITIONS APPLICABLE TO MAINTENANCE, REPAIR SERVICE AND REPAIR PARTS/SPARE PARTS FOR GOVERNMENT-OWNED GENERAL PURPOSE COMMERCIAL INFORMATION TECHNOLOGY EQUIPMENT (AFTER EXPIRATION OF GUARANTEE/WARRANTY PROVISIONS AND/OR WHEN REQUIRED SERVICE IS NOT COVERED BY GUARANTEE/WARRANTY PROVISIONS) AND FOR LEASED EQUIPMENT (SPECIAL ITEM NUMBER 132-12)

1. SERVICE AREAS

a. The maintenance and repair service rates listed herein are applicable to any ordering activity location within the Continental United States (CONUS). If any additional charge is to apply because of the greater distance from the Contractor's service locations, the mileage rate or other distance factor shall be stated in paragraphs 8.d and 9.d of this Special Item Number 132-12.

b. When repair services cannot be performed at the ordering activity installation site, the repair services will be performed at the Contractor's plant(s) listed below:

3554 Chain Bridge Road, Suite 103, Fairfax, VA 22030

2. MAINTENANCE ORDER: *Not Offered*

a. Agencies may use written orders, EDI orders, credit card orders, or BPAs, for ordering maintenance under this contract. The Contractor shall confirm orders within fifteen (15) calendar days from the date of receipt, except that confirmation of orders shall be considered automatic for renewals for maintenance (Special Item Number 132-12). Automatic acceptance of order renewals for maintenance service shall apply for machines which may have been discontinued from use for temporary periods of time not longer than 120 calendar days. If the order is not confirmed by the Contractor as prescribed by this paragraph, the order shall be considered to be confirmed by the Contractor.

b. The Contractor shall honor orders for maintenance for the duration of the contract period or a lessor period of time, for the equipment shown in the pricelist. Maintenance service shall commence on a mutually agreed upon date, which will be written into the maintenance order. Maintenance orders shall not be made effective before the expiration of any applicable maintenance and parts guarantee/warranty period associated with the purchase of equipment. Orders for maintenance service shall not extend beyond the end of the contract period.

c. Maintenance may be discontinued by the ordering activity on thirty (30) calendar days written notice, or shorter notice when agreed to by the Contractor; such notice to become effective thirty (30) calendar days from the date on the notification. However, the ordering activity may extend the original discontinuance date upon written notice to the Contractor, provided that such notice is furnished at least ten (10) calendar days prior to the original discontinuance date.

d. Annual Funding. When annually appropriated funds are cited on a maintenance order, the period of maintenance shall automatically expire on September 30th of the contract period, or at the end of the contract period, whichever occurs first. Renewal of a maintenance order citing the new appropriation shall be required, if maintenance is to continue during any remainder of the contract period.

e. Cross-year Funding Within Contract Period. Where an ordering activity's specific appropriation authority provides for funds in excess of a 12 month, fiscal year period, the ordering activity may place an order under this schedule contract for a period up to the expiration of the contract period, notwithstanding the intervening fiscal years.

f. Ordering activities should notify the Contractor in writing thirty (30) calendar days prior to the expiration of maintenance service, if maintenance is to be terminated at that time. Orders for continued maintenance will be required if maintenance is to be continued during the subsequent period.

3. REPAIR SERVICE AND REPAIR PARTS/SPARE PARTS ORDERS

a. Agencies may use written orders, EDI orders, credit card orders, blanket purchase agreements (BPAs), or small order procedures for ordering repair service and/or repair parts/spare parts under this contract. Orders for repair service shall not extend beyond the end of the contract period.

b. When repair service is ordered, only one chargeable repairman shall be dispatched to perform repair service, unless the ordering activity agrees, in advance, that additional repair personnel are required to effect repairs.

4. LOSS OR DAMAGE

When the Contractor removes equipment to his establishment for repairs, the Contractor shall be responsible for any damage or loss, from the time the equipment is removed from the ordering activity installation, until the equipment is returned to such installation.

5. SCOPE

a. The Contractor shall provide maintenance for all equipment listed herein, as requested by the ordering activity during the contract term **(*Not Offered*)**. Repair service and repair parts/spare parts shall apply exclusively to the equipment types/models within the scope of this Information Technology Schedule.

b. Equipment placed under maintenance service shall be in good operating condition **(*Not Offered*)**.

(1) In order to determine that the equipment is in good operating condition, the equipment shall be subject to inspection by the Contractor, without charge to the ordering activity.

(2) Costs of any repairs performed for the purpose of placing the equipment in good operating condition shall be borne by the Contractor, if the equipment was under the Contractor's guarantee/warranty or maintenance responsibility prior to the effective date of the maintenance order.

(3) If the equipment was not under the Contractor's responsibility, the costs necessary to place the equipment in proper operating condition are to be borne by the ordering activity, in accordance with the provisions of Special Item Number 132-12 (or outside the scope of this contract).

6. RESPONSIBILITIES OF THE ORDERING ACTIVITY

a. Ordering activity personnel shall not perform maintenance or attempt repairs to equipment while such equipment is under the purview of a maintenance order, unless agreed to by the Contractor.

b. Subject to security regulations, the ordering activity shall permit access to the equipment which is to be maintained or repaired.

7. RESPONSIBILITIES OF THE CONTRACTOR

For equipment not covered by a maintenance contract or warranty, the Contractor's repair service personnel shall complete repairs as soon as possible after notification by the ordering activity that service is required. Within the service areas, this repair service should normally be done within 4 hours after notification **(*Not Offered*)**. ***Contractor will normally provide on-site repair or technical support within 2-3 business days following Ordering Activity request.***

8. MAINTENANCE RATE PROVISIONS: **(*Not Offered*)**

a. The Contractor shall bear all costs of maintenance, including labor, parts, and such other expenses as are necessary to keep the equipment in good operating condition, provided that the required repairs are not occasioned by fault or negligence of the ordering activity.

b. REGULAR HOURS

The basic monthly rate for each make and model of equipment shall entitle the ordering activity to maintenance service during a mutually agreed upon nine (9) hour principal period of maintenance, Monday through Friday, exclusive of holidays observed at the ordering activity location.

c. AFTER HOURS

Should the ordering activity require that maintenance be performed outside of Regular Hours, charges for such maintenance, if any, will be specified in the pricelist. Periods of less than one hour will be prorated to the nearest quarter hour.

d. TRAVEL AND TRANSPORTATION

If any charge is to apply, over and above the regular maintenance rates, because of the distance between the ordering activity location and the Contractor's service area, the charge will be: ***None***

e. QUANTITY DISCOUNTS

Quantity discounts from listed maintenance service rates for multiple equipment owned and/or leased by a ordering activity are indicated below: **(*Not Offered*)**

Quantity Range		*Discounts*
None	Units	0 %
None	Units	0 %
None	Units	0 %

9. REPAIR SERVICE RATE PROVISIONS

a. CHARGES. Charges for repair service will include the labor charge, computed at the rates set forth in the attached Pricelist, and, when applicable, the charge for travel or transportation in accordance with U.S. Federal Travel Regulations. ***See Pricelist.***

b. MULTIPLE MACHINES. When repairs are ordered by a ordering activity on two or more machines located in one or more buildings within walking distance of each other, the charges will be computed from the time the repairman commences work on the first machine, until the work is completed on the last machine. The time required to go from one machine to another, or from one building to another, will be considered actual work performance, and chargeable to the ordering activity, provided the time consumed in going between machines (or buildings) is reasonable.

c. TRAVEL OR TRANSPORTATION

(1) AT THE CONTRACTOR'S SHOP

(a) When equipment is returned to the Contractor's shop for adjustments or repairs which are not covered by the guarantee/warranty provision, the cost of transportation, packing, etc., from the ordering activity location to the Contractor's plant, and return to the ordering activity location, shall be borne by the ordering activity.

(b) The ordering activity should not return defective equipment to the Contractor for adjustments and repairs or replacement without his prior consultation and instruction.

(2) AT THE ORDERING ACTIVITY LOCATION (Within Established Service Areas)

When equipment is repaired at the ordering activity location, and repair service rates are established for service areas or zones, the listed rates are applicable to any ordering activity location within such service areas or zones. No extra charge, time, or expense will be allowed for travel or transportation of repairmen or machines to or from the ordering activity office; such overhead is included in the repair service rates listed. – ***Repair Service Rates are as provided in attached Pricelist.***

(3) AT THE ORDERING ACTIVITY LOCATION (Outside Established Service Areas) – ***Not Offered.***

(a) The repair service rates listed for subparagraph (2) above apply, except that a travel charge of _____ per mile for repairmen will apply to the round-trip distance between the geographic limits of the applicable service area and the ordering activity location. Such charge will apply as an additional charge, but it will be limited to one round trip for each request that is made by the ordering activity for repair service, regardless of whether repairs are performed at the ordering activity location or at the Contractor's shop.

(b) When the overall travel charge computed at the above mileage rate is unreasonable (considering the time required for travel, actual and necessary transportation costs, and the allowable ordering activity per diem rate for each night the repairman is required to remain overnight at the ordering activity location), the ordering activity shall have the option of reimbursing the Contractor for actual costs, provided that the actual costs are reasonable and allowable. The Contractor shall furnish the ordering activity with a report of travel performed and related expenses incurred. The report shall include departure and arrival dates, times, and the applicable mode of travel.

d. LABOR RATES

(1) REGULAR HOURS

The Regular Hours repair service rates listed herein shall entitle the ordering activity to repair service during the period 9:00 a.m. to 5:00 p.m., Monday through Friday, exclusive of holidays observed at the ordering activity location. There shall be no additional charge for repair service which was requested during Regular Hours, but performed outside the Regular Hours defined above, at the convenience of the Contractor. – ***See Pricelist.***

(2) AFTER HOURS

When the ordering activity requires that repair service be performed outside the Regular Hours defined above, except Sundays and Holidays observed at the ordering activity location, the After Hours repair service rates listed herein shall apply. The Regular Hours rates defined above shall apply when repair service is requested during Regular Hours, but performed After Hours at the convenience of the Contractor. - ***See Pricelist.***

(3) SUNDAYS AND HOLIDAYS

When the ordering activity requires that repair service be performed on Sundays and Holidays observed at the ordering activity location, the Sundays and Holidays repair service rates listed herein shall apply. When repair service is requested to be performed during Regular Hours and/or After Hours, but is performed at the convenience of the Contractor on Sundays or Holidays observed at the ordering activity location, the Regular Hours and/or After Hours repair service rates, as applicable, shall apply.

REPAIR SERVICE RATES

LOCATION	MINIMUM CHARGE *	REGULAR HOURS PER HOUR**	AFTER HOURS PER HOUR**	SUNDAYS AND HOLIDAYS PER HOUR
CONTRACTOR'S SHOP	***See Pricelist***			
ORDERING ACTIVITY LOCATION (WITHIN ESTABLISHED SERVICE AREAS)	***See Pricelist***			
ORDERING ACTIVITY LOCATION (OUTSIDE ESTABLISHED SERVICE AREAS)	***Not Offered***			

*MINIMUM CHARGES INCLUDE 8 FULL HOURS ON THE JOB.

**FRACTIONAL HOURS, AT THE END OF THE JOB, WILL BE PRORATED TO THE NEAREST QUARTER HOUR.

10. REPAIR PARTS/SPARE PARTS RATE PROVISIONS

All parts, furnished as spares or as repair parts in connection with the repair of equipment, unless otherwise indicated in this pricelist, shall be new, standard parts manufactured by the equipment

manufacturer. All parts shall be furnished at prices indicated in the Contractor's commercial pricelist dated _____, at a discount of _____% from such listed prices. **N/A**

11. GUARANTEE/WARRANTY—REPAIR SERVICE AND REPAIR PARTS/SPARE PARTS

a. REPAIR SERVICE

All repair work will be guaranteed/warranted for a period of ***the balance of the warranty or 90 days, whichever occurs first.***

b. REPAIR PARTS/SPARE PARTS

All parts, furnished either as spares or repairs parts will be guaranteed/warranted for a period ***the balance of the warranty or 90 days, whichever occurs first.***

12. INVOICES AND PAYMENTS

a. Maintenance Service: ***Not Offered***

(1) Invoices for maintenance service shall be submitted by the Contractor on a quarterly or monthly basis, after the completion of such period. Maintenance charges must be paid in arrears (31 U.S.C. 3324). PROMPT PAYMENT DISCOUNT, IF APPLICABLE, SHALL BE SHOWN ON THE INVOICE.

(2) Payment for maintenance service of less than one month's duration shall be prorated at 1/30th of the monthly rate for each calendar day.

b. Repair Service and Repair Parts/Spare Parts

Invoices for repair service and parts shall be submitted by the Contractor as soon as possible after completion of work. Payment under blanket purchase agreements will be made quarterly or monthly, except where cash payment procedures are used. Invoices shall be submitted separately to each ordering activity office ordering services under the contract. The cost of repair parts shall be shown as a separate item on the invoice, and shall be priced in accordance with paragraph #10, above. PROMPT PAYMENT DISCOUNT, IF APPLICABLE, SHALL BE SHOWN ON THE INVOICE.

TERMS AND CONDITIONS APPLICABLE TO INFORMATION TECHNOLOGY (IT) PROFESSIONAL SERVICES (SPECIAL ITEM NUMBER 132-51)

1. SCOPE

a. The prices, terms and conditions stated under Special Item Number 132-51 Information Technology Professional Services apply exclusively to IT Services within the scope of this Information Technology Schedule.

b. The Contractor shall provide services at the Contractor's facility and/or at the ordering activity location, as agreed to by the Contractor and the ordering activity.

2. PERFORMANCE INCENTIVES

a. Performance incentives may be agreed upon between the Contractor and the ordering activity on individual fixed price orders or Blanket Purchase Agreements under this contract in accordance with this clause.

b. The ordering activity must establish a maximum performance incentive price for these services and/or total solutions on individual orders or Blanket Purchase Agreements.

c. Incentives should be designed to relate results achieved by the contractor to specified targets. To the maximum extent practicable, ordering activities shall consider establishing incentives where performance is critical to the ordering activity's mission and incentives are likely to motivate the contractor. Incentives shall be based on objectively measurable tasks.

3. ORDER

a. Agencies may use written orders, EDI orders, blanket purchase agreements, individual purchase orders, or task orders for ordering services under this contract. Blanket Purchase Agreements shall not extend beyond the end of the contract period; all services and delivery shall be made and the contract terms and conditions shall continue in effect until the completion of the order. Orders for tasks which extend beyond the fiscal year for which funds are available shall include FAR 52.232-19 (Deviation – May 2003) Availability of Funds for the Next Fiscal Year. The purchase order shall specify the availability of funds and the period for which funds are available.

b. All task orders are subject to the terms and conditions of the contract. In the event of conflict between a task order and the contract, the contract will take precedence.

4. PERFORMANCE OF SERVICES

a. The Contractor shall commence performance of services on the date agreed to by the Contractor and the ordering activity.

b. The Contractor agrees to render services only during normal working hours, unless otherwise agreed to by the Contractor and the ordering activity.

c. The ordering activity should include the criteria for satisfactory completion for each task in the Statement of Work or Delivery Order. Services shall be completed in a good and workmanlike manner.

d. Any Contractor travel required in the performance of IT Services must comply with the Federal Travel Regulation or Joint Travel Regulations, as applicable, in effect on the date(s) the travel is performed. Established Federal Government per diem rates will apply to all Contractor travel. Contractors cannot use GSA city pair contracts.

5. STOP-WORK ORDER (FAR 52.242-15) (AUG 1989)

(a) The Contracting Officer may, at any time, by written order to the Contractor, require the Contractor to stop all, or any part, of the work called for by this contract for a period of 90 days after the order is delivered to the Contractor, and for any further period to which the parties may agree. The order shall be specifically identified as a stop-work order issued under this clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Within a period of 90 days after a stop-work is delivered to the Contractor, or within any extension of that period to which the parties shall have agreed, the Contracting Officer shall either-

(1) Cancel the stop-work order; or

(2) Terminate the work covered by the order as provided in the Default, or the Termination for Convenience of the Government, clause of this contract.

(b) If a stop-work order issued under this clause is canceled or the period of the order or any extension thereof expires, the Contractor shall resume work. The Contracting Officer shall make an equitable adjustment in the delivery schedule or contract price, or both, and the contract shall be modified, in writing, accordingly, if-

(1) The stop-work order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this contract; and

(2) The Contractor asserts its right to the adjustment within 30 days after the end of the period of work stoppage; provided, that, if the Contracting Officer decides the facts justify the action, the Contracting Officer may receive and act upon the claim submitted at any time before final payment under this contract.

(c) If a stop-work order is not canceled and the work covered by the order is terminated for the convenience of the Government, the Contracting Officer shall allow reasonable costs resulting from the stop-work order in arriving at the termination settlement.

(d) If a stop-work order is not canceled and the work covered by the order is terminated for default, the Contracting Officer shall allow, by equitable adjustment or otherwise, reasonable costs resulting from the stop-work order.

6. INSPECTION OF SERVICES

The Inspection of Services–Fixed Price (AUG 1996) (Deviation – May 2003) clause at FAR 52.246-4 applies to firm-fixed price orders placed under this contract. The Inspection–Time-and-Materials and Labor-Hour (JAN 1986) (Deviation – May 2003) clause at FAR 52.246-6 applies to time-and-materials and labor-hour orders placed under this contract.

7. RESPONSIBILITIES OF THE CONTRACTOR

The Contractor shall comply with all laws, ordinances, and regulations (Federal, State, City, or otherwise) covering work of this character. If the end product of a task order is software, then FAR 52.227-14 (Deviation – May 2003) Rights in Data – General, may apply.

8. RESPONSIBILITIES OF THE ORDERING ACTIVITY

Subject to security regulations, the ordering activity shall permit Contractor access to all facilities necessary to perform the requisite IT/EC Services.

9. INDEPENDENT CONTRACTOR

All IT Services performed by the Contractor under the terms of this contract shall be as an independent Contractor, and not as an agent or employee of the ordering activity.

10. ORGANIZATIONAL CONFLICTS OF INTEREST

a. Definitions.

"Contractor" means the person, firm, unincorporated association, joint venture, partnership, or corporation that is a party to this contract.

"Contractor and its affiliates" and "Contractor or its affiliates" refers to the Contractor, its chief executives, directors, officers, subsidiaries, affiliates, subcontractors at any tier, and consultants and any joint venture involving the Contractor, any entity into or with which the Contractor subsequently merges or affiliates, or any other successor or assignee of the Contractor.

An "Organizational conflict of interest" exists when the nature of the work to be performed under a proposed ordering activity contract, without some restriction on ordering activities by the Contractor and its affiliates, may either (i) result in an unfair competitive advantage to the Contractor or its affiliates or (ii) impair the Contractor's or its affiliates' objectivity in performing contract work.

b. To avoid an organizational or financial conflict of interest and to avoid prejudicing the best interests of the ordering activity, ordering activities may place restrictions on the Contractors, its affiliates, chief executives, directors, subsidiaries and subcontractors at any tier when placing orders against schedule contracts. Such restrictions shall be consistent with FAR 9.505

and shall be designed to avoid, neutralize, or mitigate organizational conflicts of interest that might otherwise exist in situations related to individual orders placed against the schedule contract. Examples of situations, which may require restrictions, are provided at FAR 9.508.

11. INVOICES

The Contractor, upon completion of the work ordered, shall submit invoices for IT services. Progress payments may be authorized by the ordering activity on individual orders if appropriate. Progress payments shall be based upon completion of defined milestones or interim products. Invoices shall be submitted monthly for recurring services performed during the preceding month.

12. PAYMENTS

For firm-fixed price orders the ordering activity shall pay the Contractor, upon submission of proper invoices or vouchers, the prices stipulated in this contract for service rendered and accepted. Progress payments shall be made only when authorized by the order. For time-and-materials orders, the Payments under Time-and-Materials and Labor-Hour Contracts at FAR 52.232-7 (DEC 2002), (Alternate II – Feb 2002) (Deviation – May 2003) applies to time-and-materials orders placed under this contract. For labor-hour orders, the Payment under Time-and-Materials and Labor-Hour Contracts at FAR 52.232-7 (DEC 2002), (Alternate II – Feb 2002) (Deviation – May 2003)) applies to labor-hour orders placed under this contract.

13. RESUMES

Resumes shall be provided to the GSA Contracting Officer or the user ordering activity upon request.

14. INCIDENTAL SUPPORT COSTS

Incidental support costs are available outside the scope of this contract. The costs will be negotiated separately with the ordering activity in accordance with the guidelines set forth in the FAR.

15. APPROVAL OF SUBCONTRACTS

The ordering activity may require that the Contractor receive, from the ordering activity's Contracting Officer, written consent before placing any subcontract for furnishing any of the work called for in a task order.

16. DESCRIPTION OF IT SERVICES AND PRICING

Please refer to labor category and pricing incorporated into this GSA pricelist.

USA COMMITMENT TO PROMOTE SMALL BUSINESS PARTICIPATION PROCUREMENT PROGRAMS

PREAMBLE

(Name of Company) provides commercial products and services to ordering activities. We are committed to promoting participation of small, small disadvantaged and women-owned small businesses in our contracts. We pledge to provide opportunities to the small business community through reselling opportunities, mentor-protégé programs, joint ventures, teaming arrangements, and subcontracting.

COMMITMENT

To actively seek and partner with small businesses.

To identify, qualify, mentor and develop small, small disadvantaged and women-owned small businesses by purchasing from these businesses whenever practical.

To develop and promote company policy initiatives that demonstrate our support for awarding contracts and subcontracts to small business concerns.

To undertake significant efforts to determine the potential of small, small disadvantaged and women-owned small business to supply products and services to our company.

To insure procurement opportunities are designed to permit the maximum possible participation of small, small-disadvantaged, and women-owned small businesses.

To attend business opportunity workshops, minority business enterprise seminars, trade fairs, procurement conferences, etc., to identify and increase small businesses with whom to partner.

To publicize in our marketing publications our interest in meeting small businesses that may be interested in subcontracting opportunities.

We signify our commitment to work in partnership with small, small disadvantaged and women-owned small businesses to promote and increase their participation in ordering activity contracts. To accelerate potential opportunities please contact

Linda Jacobsen
(703) 352-9728
(703) 273-7011
Linda@spacequest.com

THE FOLLOWNG IS A SUGGESTED BLANKET PURCHASE AGREEMENT (BPA) FORMAT

BEST VALUE
BLANKET PURCHASE AGREEMENT
FEDERAL SUPPLY SCHEDULE

(Insert Customer Name)

In the spirit of the Federal Acquisition Streamlining Act (ordering activity) and SpaceQuest, Ltd. enter into a cooperative agreement to further reduce the administrative costs of acquiring commercial items from the General Services Administration (GSA) Federal Supply Schedule Contract(s) _____.

Federal Supply Schedule contract BPAs eliminate contracting and open market costs such as: search for sources; the development of technical documents, solicitations and the evaluation of offers. Teaming Arrangements are permitted with Federal Supply Schedule Contractors in accordance with Federal Acquisition Regulation (FAR) 9.6.

This BPA will further decrease costs, reduce paperwork, and save time by eliminating the need for repetitive, individual purchases from the schedule contract. The end result is to create a purchasing mechanism for the ordering activity that works better and costs less.

Signatures

_____		SpaceQuest, Ltd.	
Ordering Activity	Date	Contractor	Date

BPA NUMBER_____

(CUSTOMER NAME)
BLANKET PURCHASE AGREEMENT

Pursuant to GSA Federal Supply Schedule Contract Number(s)_____, Blanket Purchase Agreements, the Contractor agrees to the following terms of a Blanket Purchase Agreement (BPA) EXCLUSIVELY WITH (ordering activity):

(1) The following contract items can be ordered under this BPA. All orders placed against this BPA are subject to the terms and conditions of the contract, except as noted below:

MODEL NUMBER/PART NUMBER	*SPECIAL BPA DISCOUNT/PRICE
_____	_____
_____	_____
_____	_____

(2) Delivery:

DESTINATION	DELIVERY SCHEDULES / DATES
_____	_____
_____	_____
_____	_____

(3) The ordering activity estimates, but does not guarantee, that the volume of purchases through this agreement will be _____.

(4) This BPA does not obligate any funds.

(5) This BPA expires on _____ or at the end of the contract period, whichever is earlier.

(6) The following office(s) is hereby authorized to place orders under this BPA:

OFFICE	POINT OF CONTACT
_____	_____
_____	_____
_____	_____

(7) Orders will be placed against this BPA via Electronic Data Interchange (EDI), FAX, or paper.

(8) Unless otherwise agreed to, all deliveries under this BPA must be accompanied by delivery tickets or sales slips that must contain the following information as a minimum:

(a) Name of Contractor;

(b) Contract Number;

(c) BPA Number;

(d) Model Number or National Stock Number (NSN);

(e) Purchase Order Number;

(f) Date of Purchase;

(g) Quantity, Unit Price, and Extension of Each Item (unit prices and extensions need not be shown when incompatible with the use of automated systems; provided, that the invoice is itemized to show the information); and

(h) Date of Shipment.

(9) The requirements of a proper invoice are specified in the Federal Supply Schedule contract. Invoices will be submitted to the address specified within the purchase order transmission issued against this BPA.

(10) The terms and conditions included in this BPA apply to all purchases made pursuant to it. In the event of an inconsistency between the provisions of this BPA and the Contractor's invoice, the provisions of this BPA will take precedence.

****

BASIC GUIDELINES FOR USING
"CONTRACTOR TEAM ARRANGEMENTS"

Federal Supply Schedule Contractors may use "Contractor Team Arrangements" (see FAR 9.6) to provide solutions when responding to a ordering activity requirements.

These Team Arrangements can be included under a Blanket Purchase Agreement (BPA). BPAs are permitted under all Federal Supply Schedule contracts.

Orders under a Team Arrangement are subject to terms and conditions or the Federal Supply Schedule Contract.

Participation in a Team Arrangement is limited to Federal Supply Schedule Contractors.

Customers should refer to FAR 9.6 for specific details on Team Arrangements.

Here is a general outline on how it works:

- The customer identifies their requirements.
- Federal Supply Schedule Contractors may individually meet the customers needs, or -
- Federal Supply Schedule Contractors may individually submit a Schedules "Team Solution" to meet the customer's requirement.
- Customers make a best value selection.

SpaceQuest Labor Categories and Hourly Rates

No.	Labor Catetgory	Government Rate	Government Rate + 0.75% IFF
1	Senior Engineering General Manager	$ 142.50	$ 143.57
2	Subject Matter Specialist	$ 142.50	$ 143.57
3	Senior Scientist	$ 128.25	$ 129.21
4	Senior Engineering Specialist	$ 118.75	$ 119.64
5	Senior Engineering Technical Director	$ 118.75	$ 119.64
6	Program Manager	$ 114.00	$ 114.86
7	Advanced Systems Analyst	$ 95.00	$ 95.71
8	Principal Systems Analyst	$ 90.25	$ 90.93
9	Program Control Director	$ 85.50	$ 86.14
10	Program Director	$ 80.75	$ 81.36
11	Principal Engineer	$ 71.25	$ 71.78
12	Program Control Analyst	$ 61.75	$ 62.21
13	Associate Engineer	$ 47.50	$ 47.86
14	Office Administrator	$ 38.00	$ 38.29
15	Senior Office Assistant	$ 28.50	$ 28.71

Hourly Labor Rates are subject to 3.5% escalation per year after the first year.

SpaceQuest and the Government have agreed to out year pricing at 3.5% per year for the initial contract period. No further rate increases will be implemented during the initial contract period and SpaceQuest has waived the Economic Price Adjustment Clause, GSA 552.216-70 for SIN 132-51.

SpaceQuest Government Rates (with IFF) for Years 1 to 5

No.	Labor Catetgory	Year 1	Year 2	Year 3	Year 4	Year 5
1	Senior Engineering General Manager	$ 143.57	$ 148.59	$ 153.79	$ 159.18	$ 164.75
2	Subject Matter Specialist	$ 143.57	$ 148.59	$ 153.79	$ 159.18	$ 164.75
3	Senior Scientist	$ 129.21	$ 133.73	$ 138.41	$ 143.26	$ 148.27
4	Senior Engineering Specialist	$ 119.64	$ 123.83	$ 128.16	$ 132.65	$ 137.29
5	Senior Engineering Technical Director	$ 119.64	$ 123.83	$ 128.16	$ 132.65	$ 137.29
6	Program Manager	$ 114.86	$ 118.87	$ 123.04	$ 127.34	$ 131.80
7	Advanced Systems Analyst	$ 95.71	$ 99.06	$ 102.53	$ 106.12	$ 109.83
8	Principal Systems Analyst	$ 90.93	$ 94.11	$ 97.40	$ 100.81	$ 104.34
9	Program Control Director	$ 86.14	$ 89.16	$ 92.28	$ 95.51	$ 98.85
10	Program Director	$ 81.36	$ 84.20	$ 87.15	$ 90.20	$ 93.36
11	Principal Engineer	$ 71.78	$ 74.30	$ 76.90	$ 79.59	$ 82.37
12	Program Control Analyst	$ 62.21	$ 64.39	$ 66.64	$ 68.98	$ 71.39
13	Associate Engineer	$ 47.86	$ 49.53	$ 51.26	$ 53.06	$ 54.92
14	Office Administrator	$ 38.29	$ 39.62	$ 41.01	$ 42.45	$ 43.93
15	Senior Office Assistant	$ 28.71	$ 29.72	$ 30.76	$ 31.84	$ 32.95

TRAVEL: Any Contractor travel required in the performance of services must comply with the Federal Travel Regulation or Joint Travel Regulations, as applicable, in effect on the date(s) the travel is performed. Established Federal Government per diem rates will apply to all Contractor travel. Contractors cannot use GSA city pair contracts. The Contractor shall not add the 0.75% Industrial Funding Fee onto the travel costs.

SPACEQUEST LABOR CATEGORY DEFINITIONS

1. Senior Engineering General Manager

Minimum General Experience:	Extensive and progressively responsible business and systems management experience.
Functional Responsibilities:	Directs, manages and controls smaller than $3.0M division business operations; establishes, monitors and oversees the attainment of division goals and objectives; through division vice president, directors and managers, reviews and evaluates personnel, facilities and equipment management and security activities; establishes and maintains relationships with clients and contractors in new business development, contract administration, analysis and management; oversees and initiates marketing and strategic planning programs; directs division's capital, human resources and technical resources; develops, oversees and evaluates senior management and technical staff; may participate in corporate-wide decision-making, business management and strategy development.
Minimum Education:	Must have a Master's degree with 12 years experience or a Bachelor's degree and 16 years experience.

2. Subject Matter Specialist

Minimum General Experience:	Extreme knowledge in specialized scientific and engineering technical functions. Individuals are experts in their engineering and/or systems related fields and disciplines.
Functional Responsibilities:	These persons perform analytical work in the support of systems or organizations. This can include: data management, business management/program control, cost variance analysis, business process reengineering, survivability and vulnerability analysis, networking, telecommunications, video conferencing, cost and operational effectiveness analysis, modeling, simulation and gaming, and high level and specialized computer network support. Functional technical specialists typical duties include analysis, planning, establishment of requirements, functional modeling, development of procedures.
Minimum Education:	Must have a Doctorate degree and 8 years experience, a Master's degree and 12 years experience, or a Bachelor's degree and 16 years experience.

3. Senior Scientist

Minimum General Experience:	Considerable experience in physical, mathematical or scientific analysis, including considerable experience in computer modeling using advanced level software programming.
Functional Responsibilities:	Develops, modifies and applies computer modeling and programming applications to analyze and solve mathematical, physical and scientific problems affecting system and program performance; develops and applies complex computations using computer software; prepares,

	tests and edits program documentation and operating instructions for system users; confers with users to identify issues and formulate and implement necessary changes; assigns less difficult tasks to professional and technical staff as part of a work team; estimates manpower needs and scheduling requirements for assignments; may interact with customer representatives concerning project scheduling as well as operational or technical problems.
Minimum Education:	Must have a Master's degree and 8 years experience or a Bachelor's degree and 10 years experience.

4. Senior Engineering Specialist

Minimum General Experience:	Must possess 8 years experience in the appropriate specialty area.
Functional Responsibilities:	Be technically competent in at least four of the following technical disciplines: information and communications systems, systems engineering, system design, system test and evaluation, software engineering and development, information security, network analysis, engineering, modeling and simulations, operational analysis, or vulnerability and systems effectiveness.
Minimum Education:	Must have a Doctorate degree with 8 years experience, a Master's degree with 10 years experience, or a Bachelor's degree and 14 years experience.

5. Senior Engineering Technical Director

Minimum General Experience:	Extensive and progressively responsible business development, sales and marketing, and research and development experience.
Functional Responsibilities:	Organizes, manages and evaluates smaller than $1.0M division programs, contracts and business operations, including sales, marketing, engineering, budgeting and general administration activities; develops sales, profitability and booking objectives; selects and evaluates management and technical personnel; directs total contract and overhead budgets; prepares and analyzes major program evaluation reports; analyzes feasibility of new engineering requirements given cost standards, government regulations and contract requirements; negotiates contractor and sub-contractor business agreements; initiates relationships with clients, contractors and subcontractors; creates marketing and sales plans and strategies; attends and makes presentations at major program meetings and technical reviews.
Minimum Education:	Must have a Bachelor's degree with 12 years experience or an Associate's degree and 14 years experience.

6. Program Manager

Minimum General Experience:	Broad and progressively responsible experience in systems development and acquisition, program management, line management and contracts administration.
Functional Responsibilities:	Assists Senior Engineering General Manager in developing division goals, marketing strategies and overall business planning; directs, prepares and oversees program development proposals in response to customer

	requests and internal recommendations; develops, plans, organizes, coordinates and allocates staffing resources to contracted task plans and sub-task plans given contract work statements and written or verbal customer directions and other contract commitments; selects, directs, supervises, trains, monitors and evaluates program personnel and work performance of project managers and task leaders; provides technical oversight as needed; directs business planning efforts for engineering programs; initiates and markets company programs and services to intergovernmental representatives; researches and analyzes performance data and prepares company and program progress reports; organizes, conducts and attends progress meetings, briefings, performance reviews with customer representatives and project team members.
Minimum Education:	Must have a Master's degree with 10 years experience or a Bachelor's degree and 12 years experience.

7. Advanced Systems Analyst

Minimum General Experience:	This position requires a minimum of eight years of general experience of which five must be specialized.
Functional Responsibilities:	Provides planning, analysis, troubleshooting, integration, acquisition support, installation support, operations, maintenance, and supports training for computer systems and centers. Systems analysis support for the enhancement of new or existing systems and networks. This position also includes identifying and resolving problems encountered by users of systems and the analysis and implementation of enhancements. Performs systems-wide analysis with respect to software development, hardware development, and reliability, maintainability and availability. Conducts original, complex and highly advanced operations mission projects; evaluates the feasibility and strategic significance of broad programmatic concepts and specialized customer requirements; originates articles and summary reports concerning the progress and completion of specialized research programs; conceives methodology and overall approach to broadly defined and highly specialized projects.
Minimum Education:	Must have a Master's degree and 10 years experience or a Bachelor's degree and 12 years experience.

8. Principal Systems Analyst

Minimum General Experience:	This position requires a minimum of eight years of general experience of which five must be specialized.
Functional Responsibilities:	Provides planning, analysis, troubleshooting, integration, acquisition support, installation support, operations, maintenance, and supports training for computer systems and centers. Systems analysis support for the enhancement of new or existing systems and networks. This position also includes identifying and resolving problems encountered by users of systems and the analysis and implementation of enhancements. Supports systems-wide analysis with respect to software development, hardware development, and reliability, maintainability and availability. Also requires computer system design implementation and integration knowledge. Alternately, develops and implements project and work plan and provides technical direction to work team; organizes and recommends personnel assignments for particular projects; reviews and edits draft research designs to facilitate increased functionality in

	meeting customer requirements; assists in developing and recommending the adoption of strategic and innovative approaches to technical problems; considers a range of analytical factors.
Minimum Education:	Must have a Bachelor's degree and 10 years experience.

9. Program Control Director

Minimum General Experience:	Extensive and progressively responsible experience involving governmental contracting, program procurement, planning, administration, budgeting, logistics, costing, systems evaluation, networking and configuration and data management.
Functional Responsibilities:	Assists Senior Engineering General Manager in planning, organizing, administering, controlling and evaluating divisional program control activities; advises senior management, professional staff, contractors, sub-contractors and customer representatives concerning program management design, concepts and requirements; plans, oversees and approves personnel and resource allocations; develops, negotiates and evaluates cost proposals and contract development efforts; oversees, updates and approves subcontract funding and cost summaries; analyzes, negotiates and resolves problems concerning work scope, delivery, costing and level of commitment; reviews, evaluates and approves work plans, work statements, cost summaries and task management plans; leads and conducts interim progress reviews work coordination meetings and teleconferences with senior management, customer representatives, contractors and subcontractors; prepares, monitors and approves meeting summaries, progress reports and program updates; develops, coordinates and presents new business development proposals
Minimum Education:	Must have a Bachelor's degree and 10 years experience..

10. Program Director

Minimum General Experience:	Broad and progressively responsible experience in systems development and acquisition, program management, line management and contracts administration.
Functional Responsibilities:	Researches and analyzes smaller than $0.5M operational, testing and evaluation requirements for current and long-range programs; assesses operational missions and program goals; prepares correspondence and briefs customer representatives, staff and consultants concerning program developments, customer feedback, scheduling and progress updates; administers execution of testing and engineering tasks; tracks and measures costs and performance levels; reviews customer product support efforts on behalf of staff; plans, schedules and administers assigned personnel, procurement and contracts administration activities for assigned division programs; manages the selection, training, supervision and evaluation of employees for assigned contracts; participates in new business development and long range planning; plans and allocates project level work activities to staff, consultants and sub-contractors; monitors performance reports and progress updates.
Minimum Education:	Must have a Bachelor's degree and 8 years experience.

11. Principal Engineer

Minimum General Experience:	Must possess 6 years experience in the appropriate specialty area.
Functional Responsibilities:	Be technically competent in at least two of the following technical disciplines: information and communications systems, systems engineering, system design, system test and evaluation, software engineering and development, information security, network analysis, safety engineering, engineering, modeling and simulations, operational analysis, or vulnerability and systems effectiveness. Duties can include review of system specifications and the impact of operational requirements and assessing modeling and simulation results supporting the evaluation process.
Minimum Education:	Must have a Master's degree and 4 years experience or a Bachelor's degree and 6 years experience.

12. Program Control Analyst

Minimum General Experience:	Thorough and progressively responsible experience involving program procurement, planning, administration, budgeting, costing, and contractual reporting requirements.
Functional Responsibilities:	Leads and advises computer personnel, engineers, contractors and customer representatives as to the design and evaluation of program control information systems and reports; organizes and recommends resource allocations; designs and assists in the preparation of contract proposals; evaluates work plans, work statements and task management plans; organizes, schedules and evaluates completed tasks of engineering project teams; leads and conducts interim progress reviews and work coordination meetings and teleconferences with customer representatives and contractors; leads the preparation and evaluation of contract development proposals; drafts meeting summaries, progress reports and program updates; identifies and coordinates the development of new business development proposals.
Minimum Education:	Must have a Bachelor's degree and 5 years experience.

13. Associate Engineer

Minimum General Experience:	Some professional engineering and program analysis work experience.
Functional Responsibilities:	Supports analysis and implementation of hardware and software systems requirements or researches, summarizes and evaluates engineering data and prepares engineering and test reports for customer review. Interacts with customer representatives concerning the status of assigned tasks; administers and coordinates tasks for assigned project work activities; arranges periodic management meetings for staff and customer representatives; compiles materials for customer briefings and proposal presentations; may evaluate proposal pricing, prepare funding packages and participate in marketing activities; may assign tasks to other professional and technical staff as part of a work team; may estimate manpower needs and scheduling requirements for assigned activities.
Minimum Education:	Must have a Bachelor's degree and 2 years experience or a High School Diploma with 12 years experience.

14. Office Administrator

Minimum General Experience:	Thorough experience in office administration and secretarial work, preferably involving the management of financial, contractual and personnel records.
Functional Responsibilities:	Updates, logs and distributes weekly status reports for managerial and task leader review; formats, types, edits, reproduces and distributes documents; verifies and reconciles purchase orders, imprest and travel orders, cost reports, profit and work order sheets prior to submission to Corporate Office; administers facility overhead budgets and petty cash fund; maintains resume files, performance evaluations and personnel records; processes time cards, insurance forms and payroll records; briefs employees as to personnel, security and benefit policies; trains, assigns, coordinates, supervises and evaluates the work of office support staff; drafts, types and distributes correspondence for office personnel including activity reports, project and variance reviews, proposals, graphic displays and working group materials; administers office security establishes and maintains archive and office files; receives, screens and routes calls to appropriate SRS personnel; schedules conferences; purchases and maintains office supplies and equipment inventory.
Minimum Education:	Must have a Bachelor's degree and 6 years experience, or a high school diploma or GED and 10 years experience.

15. Senior Office Assistant

Minimum General Experience:	Some clerical work and public contact is required.
Functional Responsibilities:	Type from copy or rough draft; uses word processing programs to produce text and uncomplicated graphics; types envelopes, mailing labels and forms as needed; enters data into established and simple spreadsheets; reviews material prepared for supervisor's approval for mathematical accuracy and proper spelling; operates office machinery such as FAX machine, copier, calculator, telephone system, typewriter and word processor; runs errands as needed, may maintain departmental security practices and procedures; sorts and files nontechnical material that is partly classified or which is easily classified by simple subheadings or finer subheadings; as requested, locates clearly identified materials in files and forwards material; receives telephone calls and takes messages; greets, screens and refers visitors; prepares routine and non-technical draft correspondence in supervisor's name; schedules and confirms with supervisor tentative appointments with given prior clearance; may arrange conferences and meetings; assembles, collates and photocopies meeting materials as directed; may attend meetings and record the proceedings; arranges business travel for staff members from completed travel request form; maintains departmental records such as timecards, office supplies and correspondence log, reviews accuracy of accounting records and invoices; prepares activity reports; perform basic arithmetical computations to verify accuracy of timecards, simple spreadsheet, and purchase requisitions; orders supplies for supervisor and staff members as needed.
Minimum Education:	Must have a high school diploma and 4 years experience.

COMMUNICATIONS – ANTENNAS SYSTEMS – SIN132-8

Item No.	Description	GSA Price
AC-100	S-Band or L-Band Circular Antenna	$9800
AL-100	S-Band or L-Band Linear Antenna	$4900
ANT-100	VHF or UHF Linear Omni-Directional Monopole Antenna	$490
DCX	Down Converter (S-band or L-Band to UHF or VHF)	$9800
H-420	UHF Hybrid Coupler, Turnstile Antenna and Cables	$5880
LNA	VHF or UHF Low Noise Amplifier	$2940
RFX	Electronic RF Switch	$2940
LPF-150	VHF Low Pass Filter	$2450
HPF-400	UHF High Pass Filter	$2450
BPF-2000	Band Pass Filter	$4900
AR-S	S-Band Antenna Relay	$7350

COMMUNICATIONS – RADIOS AND MODEMS – SIN 132-8

Item	Description	GSA Price
MOD-2M	High Speed GMSK Modem (SIF Compliant)	$31,360
MOD-96	9600 Baud GMSK Modem	$9,800
TR-150	VHF Multi-Channel Transceiver (6 Watts)	$19,600
TR-400	UHF Multi-Channel Transceiver (6 Watts)	$19,600
SQTX-U	Agile UHF Transmitter (up to 7 Watts from 375 to 445 MHz)	$27,440
TX-2400	S-Band Transmitter (2200 – 2300 MHz)	$19,600
RX-145	Two Channel VHF Receiver (15kHz IF)	$16,660
RX-445	Two Channel UHF Receiver (15kHz IF)	$15,190
SQRX	Multi-band Receiver (up to 1300 MHz at 6,15 or 150 kHz IF)	$24,500
RX-2400G	S-Band Ground-Based Receiver (2200 to 2300 MHz)	$19,600
RX-2000S	S-Band Space Receiver (2200 to 2300 MHz)	$29,400

POWER – SIN 132-8

Item	Description	GSA Price
BAT-4	Matched NiCd Flight Batteries (per Cell)	$490
BCR-100	Battery Charger, Voltage Regulator and Telemetry Board	$34,300
SP-X	GaAs Solar Panels (per Watt)	$490
VC-8	DC/DC Voltage Converter	$4,900
PDB-FS3	Power Distribution Board	$10,290
PDM-7	Power Distribution Distiller Module	$8,330

COMMAND & DATA HANDLING – SIN 132-8

Item	Description	GSA Price
ADC-64	56-Channel Analog-to-Digital Telemetry Board	$9,800
CSC-75	Codeless Satellite Controller w/ Digital Commands(New)	$39,200
IFC-1000	Integrated Flight Computer (16 MB RAM, 16 MB Flash and 6 Modems)	$49,000
FM-32	RAM Board for IFC1000 (Up to 32 MB)	$14,700
MicroLink-75	Satellite Avionics Package CSC-75, TR-150, TR-400, Antennas & Cables	$93,100
GPT-CAN	General Purpose Terminal with CAN Interface (SIF Compliant)	$17,150
ESP-10	10-Port Ethernet Switch and Power Distributor (SIF Compliant)	$14,700
PYRO-8	8-Channel Pyro Deployment Board (SIF Compliant)	$10,780

ATTITUDE DETERMINATION & CONTROL – SIN 132-8

Item	Description	GSA Price
MAG-3	Three Axis Magnetometer	$7,350
SS-330	Two Axis Digital Sun Sensor	$9,310
TQR-X	Micro Torque Rods (Custom sizes)	$8,820
TCE-3	Three Channel Torquer Control Electronics	$5,880
PM-13	Programmable Permanent Magnet and Controller	$9,800

SOFTWARE – SIN 132-8

Item	Description	GSA Price
IFC-SDK	IFC-1000 Software Development Kit and Micro-Kernel / BSP Libraries	$14,700
GPT-SDK	GPT Software Development Kit and Object Libraries	$14,700
GS-SIF	SIF-Virtual Satellite Compatible Client/Server Ground Station	$147,000

OTHER – SIN 132-8

Item	Description	GSA Price
RAD-4	Four Channel Radiation Dosimeter and Electronics	$9,800
GPS-12	Space Qualified GPS Receiver	$24,500
ABI-FS3	Auxiliary Boom Interface	$4,900
MISC	Solar Cells, Hysteresis Rods, Low Loss RF Cables and Custom Boards	Call

Note: .Specific spacecraft components are subject to the availability of parts and materials.

U.S. Government Preferred Rate
Additional pricing discounts based on total $ volume per single order:
$250,000 - $500,000 5%

SIN	Item	Description	GSA Rate
132-12	OUT OF WARRANTY & REPAIR*	All	Repair is offered at Factory or Customer premises. Minimum charges include 8 full hours on the job. Fractional hours at the end of the job, will be prorated to the nearest quarter hour. Repair at Customer premises is based on the following labor rates, plus travel costs in accordance with U.S. Federal travel regulations: GSA Flat Rate: $73.50/Hr Repair at Factory is based on the following labor rates: . GSA Flat Rate: $73.50/Hr After hours, Saturday, Sunday, and Holidays will be charged at a 150% of flat rate for repair.
*Note: All non-professional labor categories are incidental to and used solely to support hardware, software, and/or professional services and cannot be purchased separately.			

SpaceQuest Product Sheets

December 1, 2006

SpaceQuest, Ltd.
3554 Chain Bridge Road
Fairfax, VA 22030
www.spacequest.com

Item	Description
AC-100	S-Band or L-Band Circular Antenna
AL-100	S-Band or L-Band Linear Antenna
ANT-100	VHF or UHF Linear Omni Directional Monopole Antenna
DCX	Down Converter (S-band or L-Band to UHF or VHF)
H-420	UHF Hybrid Coupler, Turnstile Antenna and Cables
LNA	VHF or UHF Low Noise Amplifier
RFX	Electronic RF Switch
LPF-150	VHF Low Pass Filter
HPF-400	UHF High Pass Filter
BPF-2000	Band Pass Filter
AR-S	S-Band Antenna Relay

AC-100
S-Band Circular Antenna

AL-100
S-Band Linear Antenna

ANT-100
UHF or VHF Monopole Antenna

General Specifications:	
Features:	Easy assembly and mounting Rugged, low mass, compact, low cost designs
Peak Gain:	2 dBi or 2 dBic
Impedance:	50 Ohms
Polarization:	True circularity, low ellipticity, good axial ratio for circular antenna
Mounting:	S-Band antennas are self contained UHF/VHF need a ground plane
Size:	Depends on frequency
Mass:	10 to 100 grams
Operating Temperature:	-40°C to +80°C
Storage Temperature:	-50°C to +100°C

DCX

S Band RF Down Converter

General Specifications:	
Input Frequency:	S-band
Output Frequency:	435 MHz
Noise Figure	Approximately 0.7 dB
Gain:	Approximately 20 dB
Bandwidth:	Greater than 10 MHz
Frequency Stability:	±5ppm from -10ºC to +60ºC
Size:	111 mm x 56 mm x 30 mm
Mass:	300 grams
Input Voltage:	12V to 14V Typical
Power Consumption:	~1 Watt
Operating Temperature:	-20ºC to +60ºC
Storage Temperature:	-30ºC to +80ºC

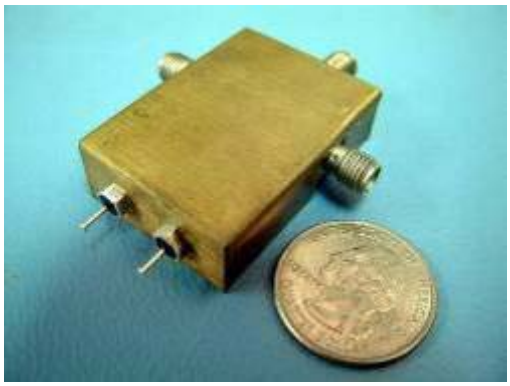
This unit was qualified for University of Berkeley/NASA ChipSat project.

LNA

UHF or VHF
Low Noise Amplifier

General Specifications:	
Gain:	18 to 20 dB
Noise Figure:	0.7 dB
Protection:	Grounded input and outputs with built in protection up to +10 dBm
Filters:	Two helical coils in a silver plated cavity
Size:	90mm x 60mm x 30mm
Mass:	60 grams
Supply Voltage:	4 to 15 Volts
Current:	10 mA at 4 Volts
Connectors:	SMA connectors for RF input and output Feed thru for power and ground
Operating Temperature:	-20°C to +60°C
Storage Temperature:	-30°C to +80°C

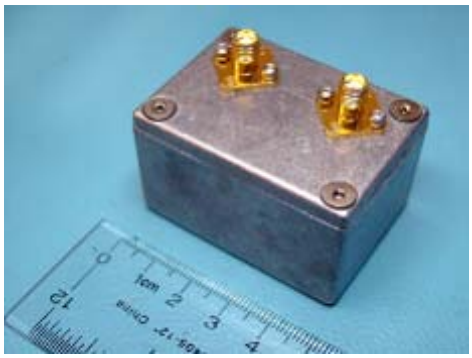
RFX
Electronic RF Switch



General Specifications:	
Design Type:	SPDT Reflective
Frequency Range:	DC to 2.5 GHz
Insertion Loss:	0.4 dB at 500 MHz
Return Loss:	20 dB at 500 MHz
Intercept Point 1:	29 dBm
Intercept Point 3:	50 dBm
Switching Speed:	2 nanoseconds
Power Consumption:	<10 microamps
Driver Circuits:	Either 3 Volts or 5 Volt logic control available
Size:	30 mm x 40 mm x 15 mm
Mass:	30 grams
Operating Temperature:	-20°C to +60°C
Storage Temperature:	-30°C to +80°C

LPF-150

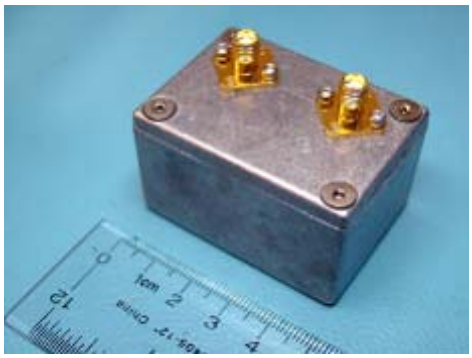
Low-Pass Filter



General Specifications:	
Power handling:	7W minimum
Insertion loss:	Less than 0.5db maximum
UHF reaction:	55dB minimum
SWR:	1.3:1 maximum
Impedance:	50 ohms
Input/output connectors:	SMA female
Design:	Completely passive with no active components
Size:	53mm x 37mm x 40mm including connectors
Mass:	60 grams

HPF-400

High-Pass Filter



General Specifications:	
Power handling:	7W minimum
Insertion loss:	Less than 0.5db maximum
VHF reaction:	55dB minimum
SWR:	1.3:1 maximum
Impedance:	50 ohms
Input/output connectors:	SMA female
Design:	Completely passive with no active components
Size:	53mm x 37mm x 40mm including connectors
Mass:	60 grams

BPF-2000
Band-Pass Filter

General Specifications:	
Design:	Passive Band Pass Filters; No electronic components
Frequency:	VHF, UHF, or L or S-Band
Impedance:	50 ohms in/out
Maximum VSWR:	1.5:1
Construction:	Solid Aluminum Bar Stock; Silver-Plated; 2 to 16 sections
3 dB Bandwidths:	From 0.2% to 20% depending on requirements
Resonators:	Quarter-wave or helical
Power handling:	10W
3dB bandwidth:	1%-20% available
Connector:	SMA, gold plated
Mass:	Approximately ~300 g, depending on frequency
Size:	Approximately 1” x 1.25” x 6.5” for S Band.

ARDB-FS3

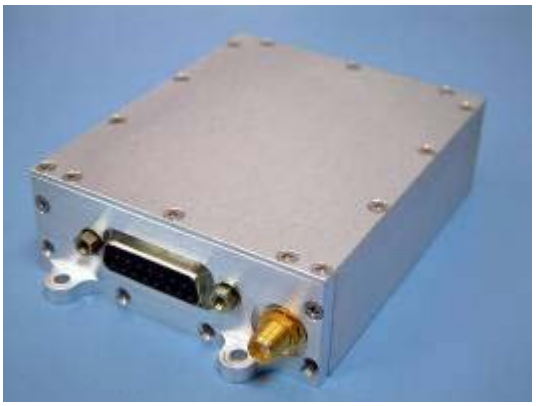
Antenna Relay Drive Board

General Specifications:	
Supply Voltage:	+7.0 V to +12.5 V (+9 V nominal)
Output Voltage:	+28 V at 1 Amp
Output Pulses:	One TTL reset pulse, six TTL select pulses
Pulse Duration:	50 msec
Control Inputs:	Enable, Strobe, Select A, Select B, Select C
Supply Current:	< 0.1 mA disabled 2.5 mA enabled < 3.0 A firing reset pulse
Short-Circuit Protection:	Shutdown with automatic retry
Size:	53.7 mm x 91.3 mm
Mass:	40 grams
Mounting:	4 x #4 mounting screws
Operating Temperature:	-40°C to +70°C
Storage Temperature:	-40°C to +125°C

The ARDB-FS3 is intended to drive a six-position RF latching relay.
+28 V is generated to power the relay, while seven TTL pulse outputs cause it to switch position.

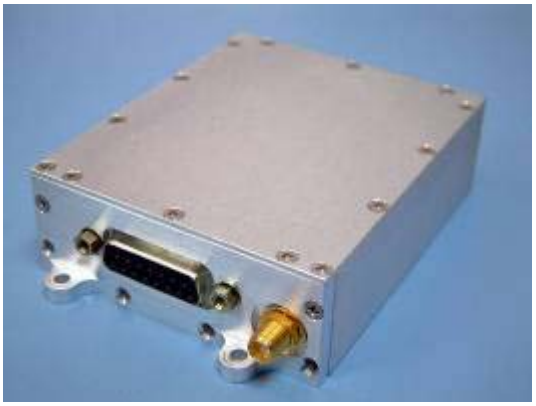
Item	Description
MOD-2M	High Speed GMSK Modem (SIF Compliant)
MOD-96	9600 Baud GMSK Modem
TR-150	VHF Multi-Channel Transceiver (6 Watts)
TR-400	UHF Multi-Channel Transceiver (6 Watts)
SQTXU	Agile UHF Transmitter (up to 7 Watts from 375 to 445 MHz)
TR-433	UHF Amateur Radio Transmitter/Receiver (0.3 Watt)
TX-2400	S-Band Transmitter (2200 – 2300 MHz)
RX-145	Two Channel VHF Receiver (15kHz IF)
RX-445	Two Channel UHF Receiver (15kHz IF)
SQRX	Multi-band Receiver (up to 1300 MHz at 6, 15 or 150 kHz IF)
RX-2400G	S-Band Ground Receiver (2200 to 2300 MHz)
RX-2000S	S-Band Space Receiver (2200 to 2300 MHz)

TR-150
VHF Transceiver



General Specifications:	
Frequency Range:	130 MHz to 160 MHz
Frequency Control:	PLL
Receiver Sensitivity:	-118dBm for 12dB SINAD
Receiver Frequency Stability:	1.5 ppm
IF Bandwidth:	10 or 15 KHz
Adjacent Channel Selectivity:	60 dB minimum
Spurious Image Rejection:	70 dB minimum
Intermodulation Rejection;	70 dB minimum
Transmitter RF Output Power:	6 Watts
HPA Efficiency:	About 40%
FM Modulation:	Deviation up to 10 KHz standard
Modulation Frequency Response:	Up to 10 KHz standard
Data Rate:	Up to 10 Kbps standard
Supply Voltage:	7.5 Volts nominal 6-16 Volts available
Size:	83mm x 70mm x 19mm
Mass:	210 grams
Operating Temperature:	-20°C to +60°C
Storage Temperature:	-30°C to +80°C
Antenna Connection:	50 Ohm SMA
Power/Control Connector:	Filtered 15-Pin D-Sub

TR-400
UHF Transceiver

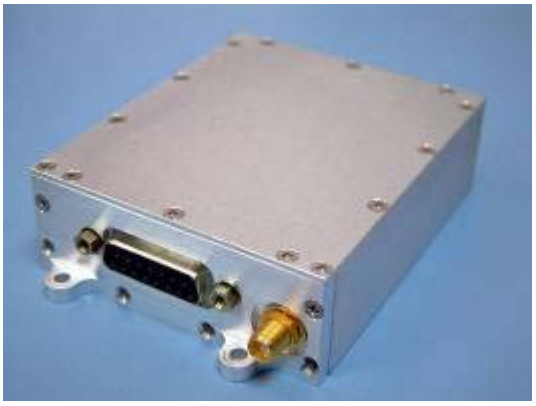


General Specifications:	
Frequency Range:	400MHz to 500MHz
Frequency Control:	PLL
Receiver Sensitivity:	-118dBm for 12dB SINAD
Receiver Frequency Stability:	1.5 ppm
IF Bandwidth:	10 or 15 KHz
Adjacent Channel Selectivity:	60 dB minimum
Spurious Image Rejection:	70 dB minimum
Intermodulation Rejection;	70 dB minimum
Transmitter RF Output Power:	6 Watts
HPA Efficiency:	About 40%
FM Modulation:	Deviation up to 10 KHz standard
Modulation Frequency Response:	Up to 10 KHz standard
Data Rate:	Up to 10 Kbps standard
Supply Voltage:	7.5 Volts nominal 6-16 Volts available
Size:	83mm x 70mm x 19mm
Mass:	210 grams
Operating Temperature:	-20°C to +60°C
Storage Temperature:	-30°C to +80°C
Antenna Connection:	50 Ohm SMA
Power/Control Connector:	Filtered 15-Pin D-Sub

SQTX
Agile UHF Transmitter

General Specifications:	
RF Output Power:	0 to 7 Watts in 4096 steps
Frequency Range:	370 MHz to 415 MHz or 400 MHz to 440 MHz
Frequency Step Size:	2.5 kHz
HPA Efficiency:	About 45%
Size:	Approximately 100 x 120 x 28 mm (4 x 5 x 1 inch)
Mass:	350 grams (12 ounces)
Supply Voltage:	7.5 Volts nominal and will accept 6-9 volts DC
FM Modulation:	Deviation up to 10 KHz standard
Modulation Frequency Response:	DC to 50 KHz standard
Data Rate:	Up to 57.6 Kbps standard
Frequency Stability:	± 5ppm from -10°C to 60°C
Long-Term Stability:	< 3ppm over seven years
Control:	Logic for Standby & TX Activate SPI for power & frequency control
Telemetry:	Thermistor for temperature Logic for PLL lock Analog for RF level
Activation Time:	7 milliseconds from standby 50 milliseconds from fully-off
Operating Temperature:	-20°C to +60°C
Storage Temperature:	-30°C to +80°C
Antenna Connection:	50 Ohm SMA
Power/Control Connector:	Filtered 15-pin D-Sub

TX-433
UHF Transmitter



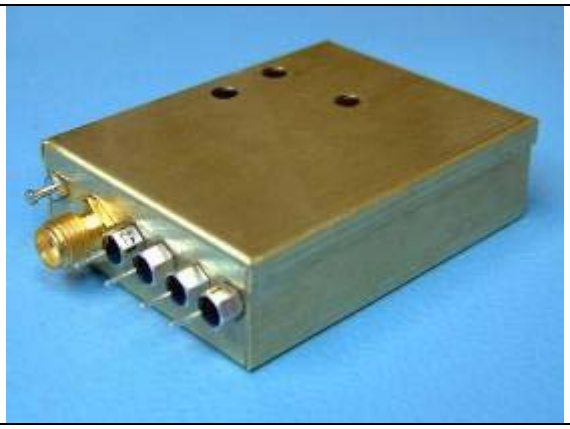
General Specifications:	
RF Output Power:	6 Watts
Frequency Range:	400 MHz to 450 MHz
HPA Efficiency:	About 40%
Size:	83mm x 70mm x 19mm
Mass:	210 grams
Supply Voltage:	8.5 Volts nominal and will accept 6-9 Volts
FM Modulation:	Deviation up to 10 KHz standard
Modulation Frequency Response:	DC to 50 KHz standard
Data Rate:	Up to 57.6 Kbps standard
Frequency Stability:	± 5ppm from -10°C to 60°C
Long-Term Stability:	<3ppm over seven years
Telemetry:	Temperature Thermistor
Operating Temperature:	-20°C to +60°C
Storage Temperature:	-30°C to +80°C
Antenna Connection:	50 Ohm SMA
Power/Control Connector:	Filtered 15-Pin D-Sub

TX-2400
S-Band Transmitter

General Specifications:	
RF Output Power:	2.5 Watts, 5 Watts, or 10 Watts available
Frequency:	2000 to 2300 MHz
Frequency Selection:	Single Channel, Pre-wired internal
Frequency Response:	1 KHz to 4 MHz
Distortion:	1% Max
Frequency Stability:	± .002% (-20°C to +50°C)
Size:	68mm x 35mm x 15mm
Mass:	70 grams for 2.5 Watt model
Supply Voltage:	8 to 32 VDC
Current:	800 mA maximum fir 2.4 Watt Model
Reverse Polarity:	Protected
Power Return:	Power and Modulation return common to chassis
Power Connector:	MDM 9S on the unit
RF Output Connector:	SMA Female
Operating Temperature:	-20°C to +70°C
Storage Temperature:	-30°C to +80°C
Output Impedance:	50 Ohm nominal
VSWR:	12.0:1 nominal

RX-445 or RX-145

VHF or UHF Receiver



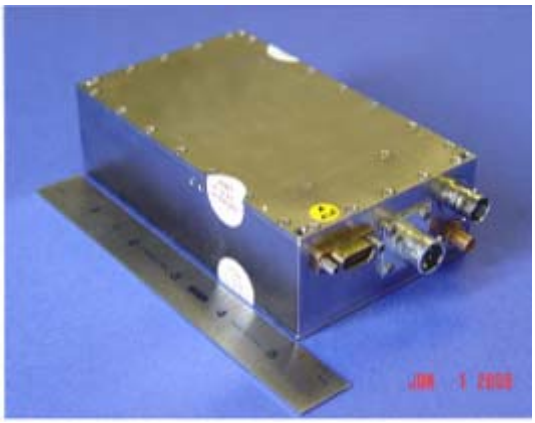
General Specifications:	
Sensitivity:	-121dBm or -125dBm with GaAs FET Pre-Amp
IF/ Bandwidth:	21.4 MHz and 455 KHz at 15 or 30 KHz
Selectivity:	>55dB
Number of Channels:	2 selectable (crystal controlled)
UHF Frequency Range:	400 MHz to 470 MHz
VHF Frequency Range:	140 MHz to 160 MHz
Frequency Stability:	±5ppm from -10ºC to +60ºC
Long Term Crystal Frequency Drift:	<3ppm for 7 years
Maximum Data Rate:	9600 bps GMSK
Discriminator Output:	20 mV_{p-p} DC Coupled
Input Voltage:	4V Nominal (2.8 to 4.8V range)
Power Consumption:	30mW
Operating Temperature:	-10ºC to +60ºC
Storage Temperature:	-30ºC to +80ºC
Size:	58mm x 39mm x 15mm (including connectors)
Mass:	40 grams

SQRX

Multi-Band Receiver

General Specifications:	
C	10 MHz to 1.3 GHz Up to 2.4 GHz with font-end downconverter
Frequency Resolution:	100 Hz tuning steps
IF Bandwidth:	4 kHz, 15 kHz or 150 kHz
Tuning Step Time:	75 msec
Modulation:	AM, FM, CW, SSB, FM Wide
Receiver Type:	Triple conversion
1st IF Frequency:	266.7 MHz and 429.1 MHz
2nd IF Frequency:	10.7 MHz
3rd IF Frequency:	455 kHz
FM Sensitivity:	-117 dBm for 12 dB SINAD
Image Rejection:	>56 dB
Blocking Dynamic Range:	Beyond ±25 kHz from center > 35 dB Beyond ±75 kHz from center > 40 dB Beyond ±1 MHz from center > 65 dB
Audio Response:	2 Hz - 6 kHz FM Narrow; 2 Hz - 40 KHz FM Wide 500 Hz - 3.2 kHz SSB/CW; 100 Hz - 3 kHz AM
Maximum Data Rate (GMSK):	64 kbps for 150 kHz BW 9.6 kbps for 15 kHz BW
RSSI Output:	Digital and Analog output
Interface:	Serial connection to flight computer
Power consumption:	800 mW
Input Voltage:	5 volts
Size:	130mm x 70mm x 25 mm
Mass:	270 grams
Operating Temperature:	-20ºC to +50ºC
RF & Power/Control Connector:	SMA and DE-9
Antenna Connection:	50 Ohm grounded SMA antenna port for static and Corona discharge protection

RX-2000G
S-Band Ground Receiver



General Specifications:	
Frequency:	From 2200 to 2300 MHz (50 KHz Steps)
Frequency Selection:	Via RS-232
Noise Figure:	4 dB maximum
Frequency Selection:	Via RS-232
IF Bandwidth:	0.25, 1.0, 1.5 or 2.0 MHz at 3 dB (Factory set)
Dynamic Range:	80 dB minimum
Frequency Response:	10 Hz to ½ IF BW +3 dB
Frequency Stability:	+2.5 PPM over Environment
Size:	76mm x 127mm x 38mm
Mass:	450 grams
Supply Voltage:	12 to 20 VDC or 18 to 36 VDC
Current:	500 mA maximum
Reverse Polarity:	Protected to 100 Volts
Power Return:	Power and data return isolated from chassis
Power Connector:	PT02-H8-4P
RF Input Connector:	SMA Female
Data Output Connector:	BNC Female
Frequency Selection Connector:	MDM9S
Operating Temperature:	-20°C to +60°C Baseplate
Input Impedance:	50 Ohm nominal
VSWR:	2:1 maximum

RX-2000S

S-Band Receiver and Modem

General Specifications:	
Frequency Coverage:	Any single Channel between 2000-2400MHz (fixed or agile)
Modulation:	FM, FSK, GFSK, and GMSK
Data Rate	Any single data rate between 9.6K-153.6Kbps (fixed or agile)
Front-End Filter	Custom ceramic coaxial resonators with 65dB of rejection
Noise Figure:	2db Max.
IF/Filter	140MHz/custom surface mount filter with 80dB of rejection
IF bandwidth	200KHz,150KHz and 100KHz (fixed or agile)
Sensitivity	-115dBm with 9600bps signal, -110dBm with 128Kbps signal
Frequency Stability:	± 1ppm from -30°C to +75°C
RSSI	Digital output (differential or single ended)
Modem Output	Recovered Clock and Data to your CPU (differential or single ended)
Input Impedance	50 ohms
Power consumption:	~1W (5 to 14 VDC @200mA) with internal modem and differential drivers active (110 ohms)
Connector:	15 pin Micro miniature Military D (mating connector provided)
RF Connector:	SMA Female
Operating Temperature:	-30°C to +75°C
Size:	135mm x 50mm x 25mm
Mass:	200 grams

POWER

Item	Description
BAT-4	Matched NiCd Flight Batteries (per cell)
BCR-100	Battery Charger, Voltage Regulator and Telemetry Board
S-X	GaAs Solar Panels (per Watt)
VC-8	DC/DC Voltage Converter
PDB-FS3	Power Distribution Board
PDM-7	Power Distribution Distiller Module

BAT-4

NiCd Flight Cells

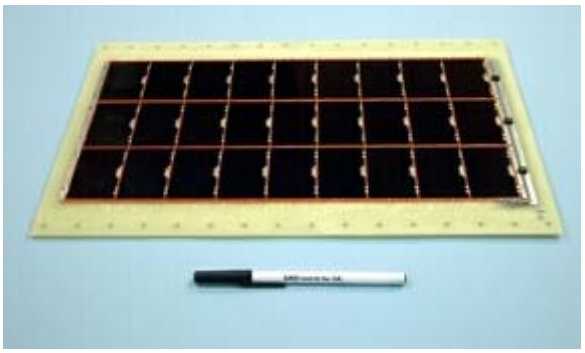
General Specifications:	
Capacity:	4 Ah nominal (1 to 7 Ah available)
Nominal Voltage:	1.3 Volts
Minimum and Maximum Voltage:	0.9 to 1.5 Volts
Charge Current:	50 to 5000 milliamps
Charge Temperature:	0 to 45°C with low current
Charge Temperature:	5 to 40°C with high current
Discharge Temperature:	-20°C to +50°C
Storage Temperature:	-30°C to +60°C
Internal Impedance:	2.8 milliohms
Mass:	160 grams
Size:	33mm diameter x 60mm length
Efficiency:	92% with 4 Ah charge and discharge
Solder Tabs:	Quadruple welded solder tabs
Physical Configuration:	Bare cells with no jacket

BCR-100

Battery Control Charger, Voltage Regulator and Telemetry Board

General Specifications:	
Solar Panels Inputs:	Up to 6 panels or 12 strings
Solar Panel Power Handling:	Up to 30 Watts
Solar Panel Input Voltage:	12 to 28 volts per panel
Solar Panel Conversion Efficiency:	>89%
Nominal Battery:	6 cells 1 to 7 Ah at 8 Volts or 4 to 10 cells 1 to 7 Ah
Nominal Available Voltages:	8V, 4.6V, 3.3V and -7VDC
Communication:	Serial SPI ports
Onboard Analog To Digital Converter:	56 channels of 12-bit resolution
Size:	220 mm x 200 mm
Mass:	200 grams
Battery Overcharge Protection:	Automatic
Battery Discharge Protection:	Automatic
Operation Without Software:	Autonomous

SP-20
GaAs Solar Panel



General Specifications:	
Solar Cells:	Triple Junction GaAs with Protective Covering
Protection:	Individual diodes on each cell and attached to each string
Bus Bars and Interconnects:	1 mm cell-to-cell spacing; 3 mm string-to-string Over 90% coverage per panel area
Substrate:	UV-protected Fiberglass Printed Circuit Board Honeycomb or other flat substrate material
Efficiency:	22% nominal
Panel Size:	10” X 14.5”
Mass:	As low as 10 grams/cell
Peak Power Voltage:	2.1 V_{pp}/cell at 28°C
Open Circuit Voltage:	2.5 V_{oc}/cell at 28°C
Current:	300 mA/cell
Output Power:	750 mW/cell
Operating Temperature:	-90°C to +90°C
Storage Temperature:	-100°C to +100°C

VC-8
DC-DC Voltage Converter

General Specifications:	
Input Voltage:	16-32 V
Output Voltage:	7.5 V
Voltage Ripple:	100 mV
Output Current:	Up to 3 A
Efficiency:	80% Minimum
Size / Mass:	76.2mm x 76.2mm x 19.1mm / 250 grams including enclosure
Enclosure:	Machined 6061 Aluminum
Operating Temperature:	-20°C to +60°C
Storage Temperature:	-40°C to +85°C

PDB-FS3
Power Distribution Board

General Specifications:	
Supply Voltage:	+7.0 V to +12.5 V (+9 V nominal)
Unswitched Outputs:	2 x +9 V (2 A max) outputs with current telemetry
Switched Outputs:	5 x +9 V (3 A max) outputs 4 x +5 V (1 A max) outputs 3 x +3.3 V (1 A max) outputs 2 x flexible (+9/5/3.3 V) outputs
Auxiliary Battery Charge:	+200 mA at +12 V
Command Interface:	24-bit SPI input word controls switches and telemetry multiplexer
Telemetry Interface:	Single output voltage, multiplexed from the following channels: Auxiliary battery voltage and current Unswitched output current (x 2) External input pin Supply voltage and current +5 V supply voltage and current +3.3 V supply voltage and current Board temperature
Short-Circuit Protection:	Foldback current limits on +3.3 V and +5 V rails Overcurrent latch-off on +9 V rail
Size:	97.0 mm x 100.0 mm
Mass:	70 grams
Mounting:	6 x #4 mounting screws
Operating Temperature:	-40°C to +70°C
Storage Temperature:	-40°C to +125°C

PDM-7
Distiller Module

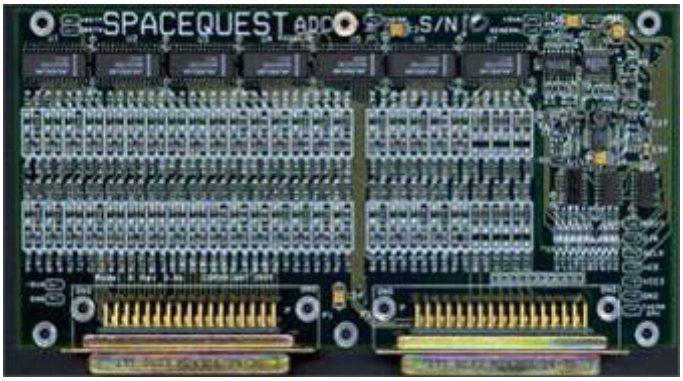
General Specifications:	
Power Outputs:	Any Combination of: - Up to Six Full-H bridge switches to +28 V or GND - Up to Twelve Half-H bridge switches to +28 V or GND (sets of 2) - Up to Twelve PWM Current Sources (sets of 2) - Various Attitude Determination System Instrument trays - Tri-Axial Accelerometers - Solid State Angular Rate Gyros
Interface:	Two Standard InterFace Ports – Female D Sub 9 Peripheral Connector – Female D Sub 25
Glue Free Interface:	Designed for Standard InterFace
Digital I/O:	CAN data Serial data
Telemetry:	Internal voltages, currents, temperature
Processor:	20 MIPS 8-bit Harvard-architecture microcontroller
Size/Mass:	90mm x 90mm x 50 mm / 365 grams including enclosure
Power/Temp:	28 V unregulated (20 V to 40 V), mA / -20°C to +60°C

COMMAND & DATA HANDLING

Item	Description
ADC-64	56 Channel Analog-to-Digital Telemetry Board
CSC-75	Codeless Satellite Controller with Digital Commands
IFC-1000	Integrated Flight Computer (16 MB RAM, 16 MB Flash and 6 Modems)
FM-32	RAM Board for IFC1000 (32 MB)
GPT-CAN	General Purpose Terminal with CAN Interface (SIF Compliant)
ESP-10	10-Port Ethernet Switch and Power Distributor (SIF Compliant)
PYRO-8	8 Channel Pyro Deployment Board (SIF Compliant)

ADC-64

Analog-to-Digital Signal Conditioning Board



General Specifications:	
Channels:	42 High-impedance Analog Telemetry Inputs 14 Thermistor Inputs
Input Voltage Range:	0 to 4 Volts single-ended, or -2 to 2 Volts differential mode
Resolution:	12-bits
Control Logic:	Four SPI lines(MISO, MOSI, Clock, Chip Select) Six multiplexer lines for input selection
Size:	180 mm x 88 mm
Mass:	110 grams
Supply Voltage:	3.3 VDC
Current:	50 mA
Connectors:	Two DB-50 male connectors
Operating Temperature:	-20°C to +60°C
Storage Temperature:	-30°C to +80°C

CSC-75

Advanced Satellite Controller with Digital Control

General Specifications:	
Features:	Single FPGA Controller. Battery Charger and Voltage Regulators. 16 I/O lines with 4 FETs/Power Switches. 16 Analog-to-Digital Conversion/Telemetry channels. 2 GMSK Data modulators and demodulators. Real-time Packetizing/Depacketizing of telemetry & commands. Cross Band Analog or Digital Repeater with Scrambler. Hardware Timeout Circuits.
Inputs:	2 Receivers inputs and one External Analog or Modem Data input up to 9600bps.
Operational Modes:	Analog repeater, 1200, 2400, 4800 and 9600bps GMSK Digital Cross band repeater and telemetry generator.
Command:	Via DTMF Touch Tone & Sub Audible Tones or via special/secure packet commands.
Battery Charger:	Autonomous, Safe Battery Charging at any Temperature.
Packetizing:	Special format with Scrambling, NRZI and CRC Checksum.
Telemetry:	Ground Station Decoding and Display Software.
Size:	150mm x 100mm x 25mm
Mass:	570 grams.
Supply Voltage:	9 to 16 Volts from Solar Panel or Power Supply.
Current:	20 mA
Connector:	62-pin D-Sub
Operating Temperature:	-20°C to +60°C
Storage Temperature:	-30°C to +80°C

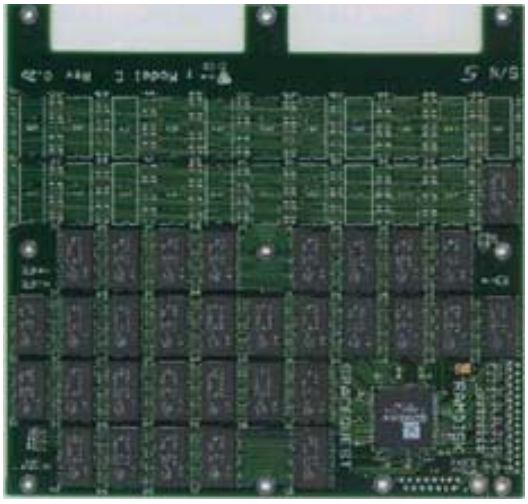
IFC-1000

Integrated Flight Computer

General Specifications:	
2 GSMK Modulators:	300 bps – 56 kbps data rate
6 GSMK Demodulators:	300 bps – 56 kbps data rate
Memory:	16 MByte Static RAM 16 MByte Flash Memory 256 Kbytes PROM
EDAC Memory:	1 MByte triple redundant majority logic for SEU protection
CPU Microprocessor:	NEC V-53A
FPGAs:	3 Quick Logic
Input/Outputs:	40 digital I/O channels
Crystal Frequency:	Up to 30 MHz
Serial Ports:	1 RS-232 1 I^2C 2 SPI buses 6 synchronous or asynchronous serial controllers
Other Interfaces:	2 external modems, additional External RAM disks
Connectors:	Two 50-Pin D-Sub connectors
Operating Temperature;	-10ºC to +60ºC
Storage Temperature:	-30ºC to +80ºC
Size:	180mm x 150mm x 25mm)
Mass:	<200 grams
Voltage:	3.3 volts
Power:	0.3 watts with 30 MHz crystal

FM-32

Flight Memory

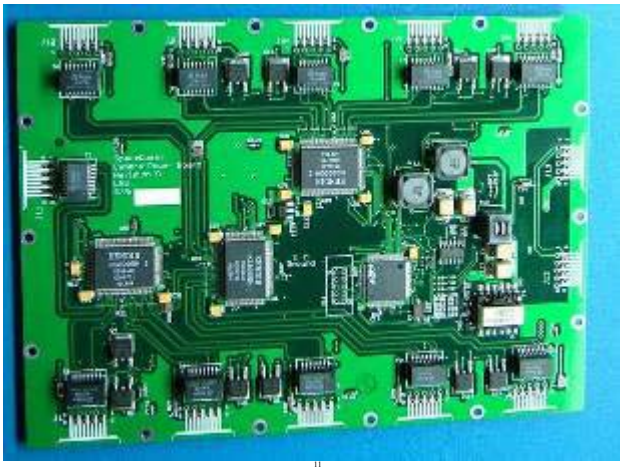


Specifications:	
Memory Capacity:	Up to 27.5 MBytes
Static RAM:	512K x 8-bits
Access time:	70 nanoseconds
Size:	140mm x 165mm
Mass	150 grams
Power Consumption	10 mW at idle
Operating Temperature	-20°C to +60°C
Storage Temperature	-30°C to +80°C
Operating Voltage	3.3 Volts

GPT-CAN
General Purpose Terminal

General Specifications:	
Power Outputs:	Six Half-H bridge switches to +28 V or GND One DC/DC converter with adjustable 1.25 V to 17 V output (250 mA) One DC/DC converter with adjustable 0 – 400 mA output (2.5 to 25 V)
Analog Inputs:	Four ±10 V analog channels Up to 8 additional 0 – 3.3 V analog channels (shared with GPIO) 16-bit ADC with very high sample rate and DMA
Glue Free Interface:	A special current source/sink multiplexer allows direct connection of: - YSI Thermistor beads - AD590 temperature sensors - RADFET radiation sensors - Potentiometers and micro switches
Analog Output:	One channel, 0 – 2.5 V, 12-bits
Digital I/O:	Up to 8 general-purpose digital I/O (shared with analog) Four-wire SPI bus Two RS-485 connected to UARTs Fault-tolerant CAN bus
Telemetry:	Internal voltages, currents, temperature Built-in pressure sensor and microphone
Processor:	20 MIPS 8-bit Harvard-architecture microcontroller
Memory:	8 kBytes boot ROM 56 kBytes program/data flash, may be updated on orbit 512 kBytes data RAM
Size:	178mm x 127mm x 40mm
Mass:	500 grams including enclosure
Power Supply:	28 V unregulated (20 V to 40 V), 12 mA
Connectors:	One 50-pin D-Sub and two 9-pin D-sub
Operating Temperature:	-20°C to +60°C
Storage Temperature:	-30°C to +80°C

ES-10
10 Port Ethernet Switch



General Specifications:	
Power Outputs:	Ten Half-H bridge switches to +28 V or GND
Glue Free Interface:	One-Wire Network ready - AD590 temperature sensors
Interface:	One Ethernet Uplink Port – D Sub 9 Two Standard InterFace Ports – D Sub 9 Ten Ethernet Ports – D Sub 9
Digital I/O:	Ten 100Base T switching Ethernet ports One-Wire Network ready (e.g. temperature sense on each ported device) Voltage, Current, … Telemetry Ten Digital Output lines (port power enable)
Telemetry:	Internal voltages, currents, temperature One-Wire Network devices (ported device telemetry)
Processor:	20 MIPS 8-bit Harvard-architecture microcontroller
Size/Mass:	203.2mm x 178.31mm x 28.96mm / grams including enclosure
Power/Temp:	28 V unregulated (20 V to 40 V), 12 mA / -20°C to +60°C

ATTITUDE DETERMINATION & CONTROL

Item	Description
MAG-3	Three Axis Magnetometer
SS-330	Two Axis Digital Sun Sensor
TQR-X	Micro Torque Rods (Custom sizes)
TCE-3	Three Channel Torquer Control Electronics
PM-13	Programmable Permanent Magnet and Controller

MAG-3

Three-Axis Magnetometer

General Specifications:	
Axial Alignment :	Orthogonality better than ± 1
Input Voltage Options :	15 to 34 VDC @ 25mA or +5 Volt Option
Field Measurement Range	± 100μT = ± 10V or
Options :	0 to + 5 Volts = ± 60μT or ± 5 Volts = ± 60μT
Accuracy :	± 0.75% of full scale (0.5% typical)
Linearity :	± 0.015% of full scale (15 to 34 VDC input) ± 0.15% of full scale (5 V option)
Sensitivity :	100 μV/nT (or user specified)
Scale Factor Temperature Shift :	0.015% full scale/ ° Celsius typical
Noise :	20 picoTesla RMS/ √Hz @1 Hz* or 10 picoTesla RMS/ √Hz @1 Hz (Low Noise version) 8 picoTesla RMS/ √Hz @1 Hz (Special)* < 100 picoTesla RMS/√ Hz @1 Hz (0 to 5 Volt model)
Output Ripple :	3 millivolt peak to peak @ 2nd harmonic
Analog Output @ Zero Field :	± 0.025 Volt
Zero Shift with Temperature :	± 0.6 nT/ ° Celsius
Susceptibility to Perming :	± 8 nT shift with ± 5 gauss applied
Output Impedance :	332 Ω ± 5%
Frequency Response :	3 dB @ > 500 Hz (to > 4 kHz wideband)
Over Load Recovery :	± 5 Gauss slew < 2 milliseconds Space Qualified.
Random Vibration :	> 20G RMS 20 Hz to 2 kHz
Temperature Range :	- 55 to + 85 Celsius operating
Acceleration :	> 60G
Weight:	100 grams
Size:	3.51 cm x 3.23 cm x 8.26 cm
Connector :	Chassis mounted 9 pin male "D" type; mating connector supplied

SS-330

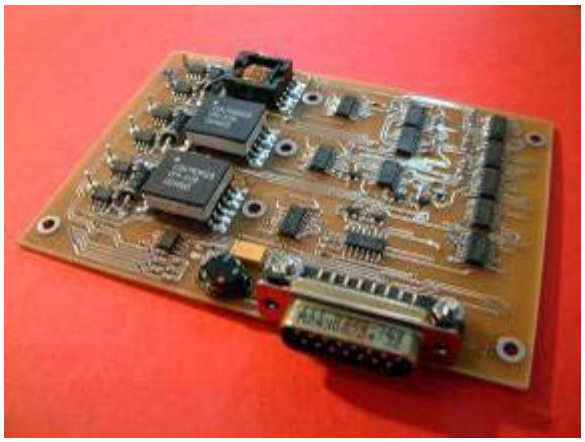
Two-Axis
Digital Sun Sensor

General Specifications:	
Field of View:	±60° minimum
Accuracy:	±1° minimum
Resolution:	<0.25°
Sensor Output:	Vector to Sun (Two-bytes each for X, Y, and Z axes)
Output Data Rate:	Up to 50 Hz in sunlight
Other Outputs:	Sun Vector, Exposure Time, Max/Min Brightness, Temperature
Raw Image Dump:	256 bytes of image pixel brightness values
External Connections:	Power, Ground, On-Off, SPI MISO, MOSI, Clock, Chip Select (7 Wires)
Operating Temperature	-30°C to +70°C
Storage Temperature:	-40°C to +100°C
Supply Voltage:	3.3 to 12 Volts
Operating Power:	60 mW @ 3.3 Volts
Standby Power:	25 mW@ 3.3 Volts
Mass:	38 grams
Size:	30mm diameter x 17mm high
Mounting:	Three #4 screws

TQR-30
Micro Torque Rod

General Specifications:	
Magnetic Field:	30 Am^2 at nominal voltage
Internal Wire Size:	29 AWG
Winding:	Single solenoid winding
Enclosure:	Aluminum Tube
Residual Magnetic Field:	<0.1%
Size:	371 mm x 60 mm x 39 mm including brackets
Mass:	700 grams
Supply Voltage:	12 V Nominal
Resistance:	62 Ω
Temperature Sensor:	YSI 10k thermistor bead
Connector:	MIL-C-26482 4-pin receptacle with #8 shell
Operating Temperature:	-40°C to +100°C
Storage Temperature:	-50°C to +100°C

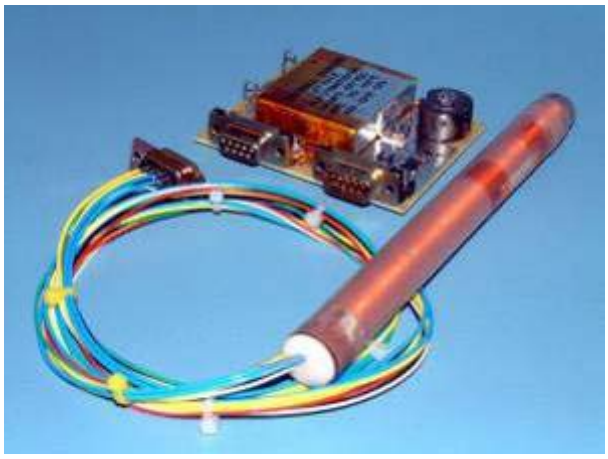
TCE-3
Torquer Control Electronics



General Specifications:	
Drive:	Up to 3 Torque Rods in positive or negative direction
Interface:	SPI 24-bit words clocked at up to 2 MHz
Telemetry:	Positive and Negative Currents
Protection:	Protected Against Open or Short Circuit Loads
Size:	10mm x 8mm x 4mm
Mass:	66 grams
Supply Voltage:	7 to 13 Volts
Current:	<1 Amp at 7 Volts while driving three rods at maximum amount
Connector:	15-pin D-Sub
Mounting:	Seven #4-40 bolts
Operating Temperature:	-20°C to +60°C
Storage Temperature:	-30°C to +80°C

PM-13

Programmable Permanent Magnet



General Specifications:	
Magnetic Dipole	Programmable up to ±13 $Am^{2,}$ then permanent for years
Dipole Moment Reversal:	60 seconds for +13 Am^2 to -12 Am^2
Telemetry:	3 Analog Outputs at 0 to 3 Volts, including: - Stored Energy - Magnetic Field Strength - Reference Voltage
Command Interface:	3 TTL Inputs: - Enable - Fire Positive, - Fire Negative
Reliability:	100% Bipolar Design for Radiation Tolerance Immune to Single Event Upsets No Tantalum Capacitors Full Built-in Test
Size:	PCB: 79mm x 61mm x 19mm high Rod: 165mm long x 17mm diameter
Mass:	PCB: 80 grams Rod: 230 grams
Supply Voltage:	5 to 10 Volts
Current:	150 mA at maximum charge current 10 microamps when off
Connector:	Two 9-Pin D-Sub Connectors
Operating Temperature:	-20°C to +60°C
Storage Temperature:	-30°C to +80°C

OTHER

Item	Description
RAD-4	Four Channel Radiation Dosimeter and Electronics
GPS-12	Space Qualified GPS Receiver
ABI-FS3	Auxiliary Boom Interface
MISC	Solar Cells, Hysteresis Rods, Low Loss RF Cables and Custom Boards

RAD-4

Radiation Dosimeter and Electronics

General Specifications:	
Number of Sensors:	Four FETs; 2 on PC Board and 2 remote
Total Dose:	Up to 1,000 KRads
Output:	Scaled 0 to 4 Volts
Calibration:	Built-in Calibration Circuit for Long Term Drift
Mounting:	Four 4-40 Bolts for PC Board
Size:	1.8" x 3.1 "
Mass:	50 grams
Supply Voltage:	6 to 12 Volts
Current:	13 micoramps
Connector:	15-pin D-Sub
Operating Temperature:	-20°C to +60°C for PCB -40°C to +80°C for Remote External Sensor
Storage Temperature:	-40°C to +80°C

GPS-12

GPS Receiver

General Specifications:	
Channels:	12
Tracking Sensitivity:	-135 dBm
Timing Signal:	1 pps Telemetry Output
Time Accuracy:	±200 nanoseconds
Position Accuracy	~50 meters
Time to First Fix:	Cold Start 120 seconds Warm Start 45 seconds Hot Start 15 seconds
Outputs:	Altitude, Position, Velocity and Acceleration in Orbit
Communications:	Binary signal up to 19.2 Kbps TTL Level RS-485 Interface Board (internal) RS-422 Interface Board option (Coming soon)
Size:	85 mm x 70mm x 20mm
Mass:	200 grams
Supply Voltage:	24 - 34 Volts
Current:	Up to 500 mA
Operating Temperature:	-20°C to +60°C
Storage Temperature:	-30°C to +80°C

ABI-FS3

Auxiliary Boom Interface

General Specifications:	
s	+7.0 V to +12.5 V (+9 V nominal)
Output Pulse:	+28 V at 2 Amps
Control Inputs:	Enable, Fire1, Fire2
Supply Current:	< 0.1 mA disabled 2.5 mA enabled 9.0 A firing actuator
Size:	72.0 mm x 73.0 mm
Mass:	40 grams
Mounting:	10 x #4 mounting screws
Operating Temperature:	-40°C to +70°C
Storage Temperature:	-40°C to +125°C

The ABIB-FS3 allows a +28 V actuator to be fired from a +9 V nominal spacecraft power bus.