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

FSC CLASS 70304: INFORMATION TECHNOLOGY SOFTWARE
OPERATING SYSTEMS SOFTWARE

SPECIAL ITEM 132-32	TERM SOFTWARE LICENSE
SPECIAL ITEM 132-33	PERPETUAL SOFTWARE LICENSE
SPECIAL ITEM 132-34	MAINTENANCE OF SOFTWARE

MFX for MVS
PROC MFX
ONLINE MFX
COBOL MFX
PIPESORT MFX
MFX for z/VSE
MFX for CMS
SYNCSORT UNIX
FILEPORT
SYNCSORT FOR WINDOWS
VISUAL SYNCSORT
MFX for z/OS
DMEXPRESS
Ironstream

SYNCSORT INCORPORATED
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PHONE: (201) 930-9700
FAX: (201) 930-8222
INTERNET: www.syncsort.com

CONTRACT NUMBER: GS-35-F-5040H
PERIOD COVERED BY CONTRACT:
10/17/12 Through 10/16/17

GENERAL SERVICES ADMINISTRATION
FEDERAL SUPPLY SERVICE

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INFORMATION FOR ORDERING OFFICES

1. **GEOGRAPHIC SCOPE OF CONTRACT**

The geographic scope of this contract is the 48 contiguous states, the District of Columbia, Alaska, Hawaii, and the Commonwealth of Puerto Rico and such other overseas locations as listed herein:

(a) Japan
(b) Germany
(c) United Kingdom

2. **SYNCSORT'S ORDERING AND PAYMENT ADDRESS**

Syncsort Incorporated
50 Tice Boulevard
Woodcliff Lake, NJ 07677

Government Commercial Credit Cards will be acceptable for payment. In addition, bank account information for wire transfer payments will be shown on the invoice.

Below is the number that can be used by ordering agencies to obtain technical and/or ordering assistance.

(201) 930-9700

3. Syncsort Inc. shall not be liable for any injury to Government personnel or damage to Government 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: Syncsort's Establishment Code: 07-371-029F
Block 30: Type of Contractor: C. Large Business
Block 31: Women Owned Small Business: No
Block 36: Syncsort's Taxpayer Identification No.: 22-1854351

4.a. Cage Code: 5F630

5. F.O.B. Destination

6. **DELIVERY SCHEDULE**

a. TIME OF DELIVERY. Syncsort shall deliver to destination within the number of calendar days after receipt of order (ARO), as set forth below. Syncsort shall insert in the "time of Delivery (days ARO)" column in the Schedule of Items a definite number of calendar days within which delivery will be made. In no case shall the offered delivery time exceed Syncsort's normal commercial practice.

ITEMS OR GROUPS OF ITEMS	DELIVERY TIME (DAYS ARO)
Special Item 132-32	Thirty (30) Days
Special Item 132-33	

b. EXPEDITED DELIVERY TIMES. For those items that can be delivered quicker than the delivery times in paragraph (a), above, Syncsort can make delivery as indicated below when expedited delivery is required.

ITEMS OR GROUPS OF ITEMS	EXPEDITED DELIVERY TIME
Special Item 132-32	Three (3) Days
Special Item 132-33	

c. OVERNIGHT AND 2-DAY DELIVERY TIMES. Schedule customers may require overnight or 2-day delivery. Syncsort can deliver any item overnight or within 2 days when required at no additional charge.

d. URGENT REQUIREMENTS. When the Federal Supply Schedule contract delivery period does not meet the bona fide urgent delivery requirements of an ordering agency, agencies are encouraged, if time permits, to contact Syncsort for the purpose of obtaining accelerated delivery. Syncsort shall replay to the inquiry within 3 work days after receipt. (Telephonic replies shall be confirmed by Syncsort in writing.) If Syncsort offers an accelerated delivery time acceptable to the ordering agency, any order(s) placed pursuant to the agreed upon accelerated delivery time frame shall be delivered within the shorter delivery time and in accordance with all other terms and conditions of the contract.

7. **DISCOUNTS**

a. Prompt Payment -None
b. Quantity - See individual Product Price Schedules
c. Dollar Value -None
d. Educational Institutions - Same as other Government Customers
e. Other - As identified herein

8. **TRADE AGREEMENT ACT OF 1979, AS AMENDED**

All items are U.S. made end products as defined in the Trade Agreements Act of 1979.

9. **EXPORT PACKING AND OVERSEAS LOGISTICS SUPPORT**

No additional charge for export packing or overseas logistics support.

10. **SMALL REQUIREMENTS**

The minimum dollar value of orders to be issued under this contract is $50.00.

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

a. Special Item 132-32 (Term Software License)

The maximum dollar value per order for all term software licenses will be $500,000.

b. Special Item 132-33 (Perpetual Software License)

The maximum dollar value per order for all perpetual software licenses will be $500,000.

Note: Maximum Order does not apply to Special Item Number 132-34 Maintenance of Software.

12. **USE OF FEDERAL SUPPLY SERVICE INFORMATION TECHNOLOGY SCHEDULE CONTRACTS.** In accordance with FAR 8.404:

Orders placed pursuant to a Multiple Award Schedule (MAS), using the procedures in FAR 8.404, are considered to be issued pursuant to full and open competition. Therefore, when placing orders under Federal Supply Schedules, ordering offices need not seek further competition, synopsize the requirement, and make a separate determination of fair and reasonable

pricing, or consider small business set-aside in accordance with subpart 19.5. GSA has already determined the prices of items under schedule contracts to be fair and reasonable. By placing an order against a schedule using the procedures outlined below, the ordering office has concluded that the order represents the best value and results in the lowest overall cost alternative (considering price, special features, administrative costs, etc.) to meet the Government's needs.

a. **Orders placed at or below the micro-purchase threshold.** Ordering offices can place orders at or below the micro-purchase threshold with any Federal Supply Schedule Contractor.

b. **Orders exceeding the micro-purchase threshold but not exceeding the maximum order threshold.** Orders should be placed with the Schedule Contractor that can provide the supply or service that represents the best value. Before placing an order, ordering offices should consider reasonably available information about the supply or service offered under MAS contracts by using the "GSA Advantage!" on-line shopping service, or by reviewing the catalogs/pricelists of at least three Schedule Contractors and selecting the delivery and other options available under the schedule that meets the agency's needs. In selecting the supply or service representing the best value, the ordering office may consider-

   (1) Special features of the supply or service that are required in effective program performance and that are not provided by a comparable supply or service;

   (2) Trade-in considerations;

   (3) Probable life of the item selected as compared with that of a comparable item;

   (4) Warranty considerations;

   (5) Maintenance availability;

   (6) Past performance; and

   (7) Environmental and energy efficiency considerations.

c. **Orders exceeding the maximum order threshold.** Each schedule contract has an established maximum order threshold. This threshold represents the point where it is advantageous for the ordering office to seek a price reduction. In addition to following the procedures in paragraph b, above, and before placing an order that exceeds the maximum order threshold, ordering offices shall.

(1) Review additional Schedule Contractors' catalogs/pricelists or use the "GSA Advantage!" on-line shopping service;

(2) Based upon the initial evaluation, generally seek price reductions from the Schedule Contractor(s) appearing to provide the best value (considering price and other factors); and

(3) After price reductions have been sought, place the order with the Schedule Contractor that provides the best value and results in the lowest overall cost alternative. If further price reductions are not offered, an order may still be placed, if the ordering office determines that it is appropriate.

NOTE: For orders exceeding the maximum order threshold, Syncsort may:

(1) Offer a new lower price for this requirement (the Price Reductions clause is not applicable to orders placed over the maximum order in FAR 52.216-19 Order Limitations);

(2) Offer the lowest price available under the contract; or

(3) Decline the order (order must be returned in accordance with FAR 52.216-19).

d. **Blanket purchase agreements (BPAs).** The Establishment of Federal Supply Schedule BPAs is permitted when following the ordering procedures in FAR 8.404. All schedule contracts contain BPA provisions. Ordering offices may use BPAs to establish accounts with Contractors to fill recurring requirements. BPAs should address the frequency of ordering and invoicing, discounts, and delivery locations and times.

e. **Price reductions.** In addition to the circumstances outlined in paragraph c, above there may be instances when ordering offices will find it advantageous to request a price reduction. For example, when the ordering office finds a schedule supply or service elsewhere at a lower price or when a BPA is being established to fill recurring requirements, requesting a price reduction could be advantageous. The potential volume of orders under these agreements, regardless of the size of the individual order, may offer the ordering office the opportunity to secure greater discounts. Schedule Contractors are not required to pass on to all schedule users a price reduction extended only to an individual agency for a specific order.

f. **Small business.** For orders exceeding the micro-purchase threshold, ordering offices should give preference to the items of small business concerns when two or more items at the same delivered price will satisfy the requirement.

g. **Documentation.** Orders should be documented, at a minimum, by identifying the Contractor the item was purchased from, the item purchased, and the amount paid. If an agency requirement in excess of the micro-purchase threshold is defined so as to require a particular brand name, product, or feature of a product peculiar to one manufacturer, thereby precluding consideration of a product manufactured by another company the ordering office shall include an explanation in the file as to why the particular brand name, product, or feature is essential to satisfy the agency's needs.

13. **FEDERAL INFORMATION TECHNOLOGY/TELECOMMUNICATION STANDARDS REQUIREMENTS:** Federal departments and agencies 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 offices, 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 PLT13S include voluntary standards when these are adopted for Federal use. Individual orders for FEBS 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)L:** 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-STDS." 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 Lenfant Plaza, Suite 8 100, 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. **SECURITY REQUIREMENTS.** In the event security requirements are necessary, the ordering activities may incorporate, in their delivery orders, a security clause in accordance with current laws, regulations, and individual agency policy; however, the burden of administering the security requirements shall be with the ordering agency. If any costs are incurred as a result of the inclusion of security requirements, such costs will not exceed ten percent (10%) or $ 100,000.00 of the total dollar value of the order, whichever is lessor.

15. **CONTRACT ADIMINISTRATION FOR ORDERING OFFICES:** Any ordering office, 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 (1) Termination for the Government's convenience, and (m) Termination for Clause (See C. 1.)

Offerors are set forth below the telephone number(s) that can be used by ordering agencies for technical and/or ordering assistance.

MFX for MVS ----------(201) 930-8260
PROC MFX----------(201) 930-8260
ONLINE MFX ----------(201) 930-8260
COBOL MFX----------(201) 930-8260
PIPESORT MFX ---------- (201) 930-8260
MFX for z/VSE ---------- (201) 930-8260
MFX for CMS ---------- (201) 930-8260
SYNCSORT UNIX---------- (201) 930-8270
FILEPORT ---------- (201) 930-8270
SYNCSORT FOR WINDOWS---------- (201) 930-8270
VISUAL SYNCSORT---------- (201) 930-8270
MFX for z/OS---------- - (201) 930-8260
DMEXPRESS ---------- (201) 930-8270
(Sort, App Mod and Full Edition Versions)

16. **GSA ADVANTAGE!**

The 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 INCIDENTAL, NON-SCHEDULE ITEMS**

For administrative convenience, open market (non-contract) items may be added to a Federal Supply Schedule Blanket Purchase Agreement (BPA) or an individual order, provided that the items are clearly labeled as such on the order, all applicable regulations have been followed, and price reasonableness has been determined by the ordering activity for the open market (non-contract) items.

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 enlarge the scope of this schedule contract for individual orders. Terms and conditions of any orders are limited strictly to those specified in the schedule contract and pricelist and agreed to by GSA.

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. Upon request of the contractor, the Government may provide the contractor with logistics support, as available, in accordance with all applicable Government regulations. Such Government 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. **YEAR 2000 WARRANTY - COMMERICAL SUPPLY ITEMS (1-FSS-550-A) (AUG 1997)**

"Year 2000 compliant," as used in this part, means with respect to information technology, that the information technology accurately processes date/time data, (including, but not limited to, calculating, comparing, and sequencing) from, into, and between the twentieth and twenty-first centuries, and the years 1999 and 2000 and leap year calculations, to the extent that other information technology, used in combination with the information technology being acquired, properly exchanges date/time data with it.

(a) All currently awarded products that are not Year 2000 compliant must be deleted from this contract no later than December 31, 1999.

(b) Any contract modifications, adding new items under clause 552.243-72, Modifications (Multiple Award Schedule), must meet the warranty requirement in paragraph c, below.

(c) The Contractor warrants that each hardware, software, and firmware product delivered under this contract shall be able to accurately process date data (including, but not limited to, calculating, comparing, and sequencing) from, into, and between the twentieth and twenty-first centuries, including leap year calculations, when used in accordance with the product documentation provided by the Contractor, provided that all listed or unlisted products (e.g. hardware, software, firmware) used in combination with such listed product properly exchange date data with it. If the contract requires that specific listed products must perform as a system in accordance with the foregoing warranty, then that warranty shall apply to those listed products as a system. The duration of this warranty and the remedies available to the Government for breach of this warranty shall be as defined in, and subject to, the terms and limitations of the Contractor's standard commercial warranty or warranties contained in this contract, provided that notwithstanding any provision to the contrary in such commercial warranty or warranties, the remedies available to the Government under this warranty shall include repair or replacement of any listed product whose non-compliance is discovered and made known to the Contractor in writing within ninety (90) days after acceptance. Nothing in this warranty shall be construed to limit any rights or remedies to defects other than Year 2000 performance.

21. BLANKET PURCHASE AGREEMENTS (BPAs)

Federal Acquisition Regulation (FAR) 13.201 (a) defines Blanket Purchase Agreements (BPAs) as "...a simplified method of filling anticipated repetitive needs for supplies or service by establishing 'charge accounts' with qualified sources of supply." The use of Blanket Purchase Agreements under the Federal Supply Schedule Program is authorized in accordance with FAR 13.202(c) (3), which reads, in part, as follows:

"BPAs may be established with Federal Supply Schedule Contractors, if not inconsistent with the terms of the applicable schedule contract."

Federal Supply Schedule contracts contain BPA provisions to enable schedule users to maximize their administrative and purchasing savings. This feature permits schedule users to set up "accounts" with Schedule Contractors to fill recurring requirements. These accounts establish a period for the BPA and generally address issues such as the frequency of ordering and invoicing, authorized callers, discounts, delivery locations and times. Agencies may qualify for the best quantity/volume discounts available under the contract, based on the potential volume of business that may be generated through such an agreement, regardless of the size of the individual orders. In addition, agencies may be able to secure a discount higher than that available in the contract based on the aggregate volume of business possible under a BPA. Finally, Contractors may be open to a progressive type of discounting where the discount would increase once the sales accumulated under the BPA reach certain prescribed levels. Use of a BPA may be particularly useful with the new Maximum Order feature. See the Suggested Format, contained in this Schedule Pricelist, for customers when using this purchasing tool.

22. CONTRACTOR TEAM ARRANGEMENTS

Federal Supply Schedule Contractors may use "Contractor Team Arrangements" (see FAR 9.6) to provide solutions when responding to a customer agency requirements. The policy and procedures outlined in this part will provide more flexibility and allow innovative acquisition methods when using the Federal Supply Schedules. See the additional information regarding Contractor Team Arrangements in this Schedule Pricelist.

TERMS AND CONDITIONS APPLICABLE TO TERM SOFTWARE LICENSE (SPECIAL ITEM 132-32), PERPETUAL SOFTWARE LICENSE (SPECIAL ITEM 132-33) AND MAINTENANCE (SPECIAL ITEM 132-34) OF GENERAL PURPOSE COMMERCIAL INFORMATION TECHNOLOGY SOFTWARE

1. PURCHASE TERMS

a. ACCEPTANCE. The Government shall accept or reject software in writing within thirty (30) calendar days after date of delivery.

b. GUARANTEE. All software furnished pursuant to the terms of this contract will be unconditionally guaranteed for defects in the software or the disk for a period of one (1) year, beginning on the first day of acceptance.

2. TECHNICAL SERVICES

Syncsort Inc., without additional charge to the Government, shall provide hot line technical support numbers as identified below for the purpose of providing user assistance and guidance in the implementation of the Software. The technical support numbers are available 24 hours a day, 7 days a week for all Software Products identified in this Pricelist.

MFX for MVS, Pipesort MFX, PROC MFX, On-Line MFX, COBOL Accelerator MFX, MFX for z/OS, MFX for z/VSE MFX for CMS	(201) 930-8260
SyncSort UNIX, Fileport, Syncsort DMExpress SyncSort for Windows, Visual SyncSort	(201) 930-8270

3. SOFTWARE MAINTENANCE

a. Software maintenance service shall include the following:

- Service for the purpose of correcting programming errors
- Enhancements to the Software which Syncsort Inc. shall make from time to time.

b. 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.

4. PERIODS OF TERM LICENSE - (132-32) AND MAINTENANCE (132-34)

a. Syncsort Inc. shall honor orders for periods of one year or less.

b. Term licenses and/or maintenance may be discontinued by the Government on thirty (30) calendar days written notice to Syncsort Inc.

c. Thirty (30) calendar days prior to the expiration date of an order, the ordering office should notify Syncsort Inc., in writing, if the rental/maintenance is going to be permitted to expire. Orders for continued rental/maintenance will be required, if rental is to be continued during the subsequent period.

5. CONVERSION FROM TERM TO PERPETUAL LICENSE

a. The Government may convert licenses from term to perpetual for any or all software at any time following acceptance of software. At the request of the Government the contractor shall furnish within ten (10) calendar days, for each software product that is contemplated for conversion, the total amount of conversion credits which have accrued while the software was on term license and the date of the last update or enhancement.

b. Conversion credits which are provided shall, within the limits specified, continue to accrue from one contract period to the next, provided the software remains on term license within the Government.

c. The software shall be discontinued from term license on the day immediately preceding the effective date of conversion.

d. The price the Government shall pay will be the perpetual license price that prevailed at the time such software was initially ordered for term license or the perpetual license price prevailing at the time of conversion, whichever is the lesser, less an amount equal to 50% of all term license payments during the period that the software was under term license within the Government.

6. TERM LICENSE CESSATION

a. After a software product has been on continuous term license for a period as specified, a fully paid-up, non-exclusive, perpetual license for the software product automatically accrues to the Government. The period of continuous term license for automatic accrual of a fully paid-up perpetual license does not have to be achieved during the twelve-month period of an order under this contract; it is a written contractor commitment which continues to be available for software that is initially ordered under this contract, until a perpetual, fully paid-up license accrues to the Government. However, should the term license of the software be discontinued before the specified period of continuous term license has been satisfied, the perpetual license accrual shall be forfeited.

MFX for MVS - 60 Months
MFX for z/VSE - 36 Months
MFX for CMS - 60 Months

b. The contractor agrees to provide updates and maintenance service for the software after a perpetual license as accrued, at the prices and terms of Special Item Number 132-32, if the licensee elects to order such services. Title to the software remains with the contractor.

7. UTILIZATION LIMITATIONS - (132-32,132-33, AND 132-34)

Software acquisition is limited to Commercial Computer Software defined in FAR Part 2. 10 1.

When acquired by the Government, commercial computer software and related documentation so legend shall be subject to the following:

(i) Title to and ownership of the software and documentation shall remain with the contractor, unless otherwise specified.

(ii) Software licenses are by site and by agency. An agency is defined as a cabinet level or independent agency. The software may be used by any subdivision of the agency (service, bureau, division, command, etc.) that has access to the site the software is placed at, even if the subdivision did not participate in the acquisition of the software. Further, the software may be used on a sharing basis where multiple agencies have joint projects that can be satisfied by the use of the software placed at one agency's site. This would allow other agencies access to one agency's data base. For Government public domain databases, User Agencies and third parties may use the computer program to enter, retrieve, analyze and present data. The User Agency will take appropriate action by instruction, agreement, or otherwise, to protect the

contractor's proprietary property with any third parties that are permitted access to the computer programs and documentation. For purposes of this section, all such permitted third parties shall be deemed agents of the User Agency.

(iii) Except as is provided in paragraph 11 (ii) above, the Government shall not provide or otherwise make available the software or documentation, or any portion thereof, in any form, to any third party without the prior written approval of the Contractor. Third parties do not include prime contractors, subcontractors and agents of the government who have the Government's permission to use the licensed software and documentation at the facility, and who have agreed to use the licensed software and documentation only in accordance with these restrictions. This provision does not limit the right of the Government to use software, documentation, or information therein, which the Government may already have or obtains with restrictions.

(iv) The Government shall have the right to use the computer software and documentation with the computer for which it is acquired at any other facility to which that computer may be transferred, or in cases of disaster recovery, the Government has the right to transfer the software to another site if the Government site for which it is acquired is deemed to be unsafe for Government personnel; to use the computer software and documentation with a backup computer when the primary computer is inoperative; to copy computer programs for safekeeping (archives) or backup purposes; to transfer a copy of the software to another site for purposes of benchmarking new hardware and/or software; and to modify the software and documentation or combine it with other software, provided that the unmodified portions shall remain subject to these restrictions.

(v) "Commercial Computer Software" may be marked with the contractor's standard commercial restricted rights legend but the schedule contract and schedule pricelist including this clause, "Utilization Limitations" are the only governing terms and conditions, and shall take precedence and supersede any different or additional terms and conditions included in the standard commercial legend.

(vi) FAR clauses 52.227-14 RIGHTS IN DATA--GENERAL (JUN 1987 and 52.22-19 COMMERCIAL COMPUTER SOFTWARE--RESTRICTED RIGHTS (JUN 1987) are incorporated by reference as part of this pricelist.

8. SOFTWARE CONVERSIONS - (132-32 AND 132-33)

a. Full monetary credit will be allowed to the Government when conversion from one version of the software to another is made as the result of a change in operating system, or from one computer system to another. Under Perpetual license (132-33), the purchase price of the new software shall be reduced by the amount that was paid to purchase the earlier version. Under term license (132-32), conversion credits which accrued while the earlier version was under term license shall carry forward and remain available as conversion credits which may be applied towards the perpetual license price of the new version.

9. DESCRIPTIONS AND EQUIPMENT COMPATIBILITY

a. Syncsort Inc. shall include on the pages which follow complete description defining software application(s) and a list of equipment on which the software can be used.

Included are brief, introductory explanations of the modules and documentation which are offered.

10. RIGHT-TO-COPY PRICING.

Syncsort Inc. shall insert the discounted pricing, if applicable, for right-to-copy licenses.

USA COMMITMENT TO PROMOTE SMALL BUSINESS PARTICIPATION PROGRAMS

11. Syncsort provides commercial products and services to the Federal Government. We are committed to promoting participation of small, small disadvantaged and women-owned small participation of small, businesses in our contracts. We pledge to provide opportunities to the small business community through reselling opportunities, mentor-protege programs, joint ventures, tearning 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 or 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 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 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 Federal Government contracts. To accelerate potential opportunities please Jerry Miano, Controller , Phone Number (201) 930-9700, fax number (201) 930-8222, e-mail *jmiano@syncsort.com*.

DESCRIPTION OF PRODUCT

MFX for MVS

MFX for MVS Release 3.7 is a high performance sort, merge and copy utility designed for OS/390, IBM MVS, MVS/ESA, and MVS/XA operating systems. MFX for MVS Release 3.7 provides significant savings in CPU time and I/O activity.

PERFORMANCE

MFX for MVS Release 3.7 exploits system characteristics to achieve significant reductions in total CPU time, problem state CPU time (TCB time), and EXCPs.

Performance techniques include optimization for specific computer make and model and specific I/O devices, proprietary sorting, algorithms, and advanced access methods. Dynamic optimization responds to system activity such as CPU utilization, DASD contention, controller caching, real and virtual storage availability, and paging rates. SyncSort MVS Release 3.7 records system activity in its database and optimizes processing based on historical patterns.

In benchmark tests of MFX for MVS Release 3.7 against DFSORT Release 14, SyncSort MVS Release 3.7 saves up to 35 percent total CPU time, 30 percent TCB time, and 50 percent EXCPs.

SORT/MERGE/COPY/PROCESSING

- EBCDIC, ASCII, user-defined, or locale-defined collating sequence.
- Up to 128 control fields, with total length up to 4092 bytes. Fields in fixed length records can be anywhere in the record.
- Standard field formats, including character, binary, packed decimal, zoned decimal, fixed point, floating point, and various signed formats.
- High performance MERGE processing of up to 100 presequenced data sets into one sorted output data set.
- High performance COPY function (SORT FIELDS=COPY), used alone or with data ending.

YEAR 2000 PROCESSING

MFX for MVS Release 3.7 provides the following powerful Year 2000 capabilities to process Y2K-sensitive data:

- A sliding or fixed 100-year window to specify the century to which 2-digit year data belongs when processed (CENTWIN).
- New date formats to correctly collate 2-digit year data that spans centuries.
- Date formats to expand 2-digit year data in packed decimal format to 4-digit year data in packed decimal format (Y2ID and Y2IP).
- Override capabilities ($ORTPARM) to apply century window processing to already defined sorts invoked from COBOL or other programs as well as to multiple sorts invoked from a single program.
- INCLUDE/OMIT record selection based on year 2000 comparisons.

RESOURCE MANAGEMENT FEATURES

- Dynamic Storage Management. Optimizes memory usage including data space and hiperspace, and sortwork device selection for all sorts.
- Dynamic Sortwork Allocation**.** Minimizes DASD resources used for sorting by acquiring sortwork incrementally throughout the sort step.
- MAXSORT. Sorts large data sets on limited DASD space. Includes automatic breakpoint/restart.
- PARASORT. Cuts elapsed time for sorts that read multiple volume or concatenated tape SORTIN data sets by processing the input volumes in parallel. Elapsed time reductions of up to 20% for 2-way input and 33% for 4-way input can be achieved.

DATA UTILITY FEATURES

- Multiple Output. Output data from a single sort pass can be directed to multiple SORTOUT datasets (OUTFIL). Each dataset can be uniquely grouped selected, and edited.
- SortWriter**.** Creates full-featured reports, without the need for COBOL.

- Data Editing. Permits easy selection and formatting of records:

  - INCLUDE/OMIT selects input records based on comparisons between fields or between fields and constants. Supports cultural environment locales, bit-level processing, and complex logical conditions.

  - INREC/OUTREC reformats and edits input/output records: Adds, removes, and reorders fields; inserts spaces, characters, binary zeros, hex digits; positions fields with column alignment; converts numeric data to printable format or other common data formats; edits numeric data with supplied or user-defined editing masks; supports repetition factors up to 4095;splits records into multiple records; converts variable length input records to fixed length output records; changes specified strings based on a lookup table; allows arithmetic calculations among fields within a record, among fields and constants, and among constants and constants.

  - SUM consolidates records with equal sort keys and optionally totals values in specified fields. Optionally writes eliminated records to a separate data set.

  - SKIPREC/STOPAFT processes or skips a specified number of records. Useful for testing.

INPUT/OUTPUT

- BSAM, VSAM, and BDAM formats and devices.

- Hiperbatch, BatchPipes/MVS.

- Variable length record validity testing, and processing of variable length records shorter than SORT/MERGE control fields or INCLUDE/OMIT compare fields.

- Automatic secondary allocation, space release, system determined block size support on SORTOUT.

INTERMEDIATE FILES

- Disk or tape.

- Supports up to 100 intermediate work files, either in JCL or through dynamic allocation.

- Dynamic allocation supports SMS STORCLASS.

- Automatic space release, secondary allocation.

EXIT SUPPORT

- Supports many user exits, including E15 and E35 exits written in C, COBOL, Assembler or REXX.

- Supports FASTSRT parm of VSCOBOL II compiler.

UTILITY PROGRAMS

- High performance replacement for IEBGENER (BetterGener).

- Variable length record analysis (HISTOGRM).

- Default options report (SYNCLIST).

INVOCATION

- Invoked through JCL or through programs written in COBOL, PL/1, Assembler, or FORTRAN.

- Supports 24-bit and 31-bit parameter lists.

- $ORTPARM facility can override parameters and control statements passed by invoking programs.

- Supports IDCAMS BLDINDEX interface.

COMPATIBILITY

- Executes on all 370 and 390 Architecture computers with OS/390, MVS/ESA or MVS/XA (plus equivalent Amdahl and Hitachi computer systems).

- Compatible with existing applications written for IBM's DFSORT or for prior SyncSort releases. Requires no changes to current JCL, control statements, parameter lists, exits, and all installed system software, including DB2 and IMS utility sorts.

- Exploits current hardware and operating system features, including data space, hiperspace, and Parallel Sysplex architecture.

INSTALLATION

- Provides and easy to use interactive installation program (SYNCINIT). Can be installed with or without SMP/E. Non-interactive installation also available.

- Can be installed in a non-reentrant or reentrant configuration.

PRODUCT PRICE SCHEDULE
MFX for MVS
RELEASE 3.7
OR
PRIOR

INCLUDES GSA NEGOTIATED DISCOUNT

132-32 TERM SOFTWARE LICENSE	132-32 TERM SOFTWARE LICENSE CESSATION PERIOD
$299.00/month	60 months

132-33
PERPETUAL SOFTWARE
LICENSE
(Includes Maintenance for
a period of one year)

INCLUDES GSA NEGOTIATED DISCOUNT

CPU MODEL	
GROUP 30 AND BELOW	$ 6,808
GROUP 40	$10,893
GROUP 50	$13,615
GROUP 60	$16,339
GROUP 70	$20,424
GROUP 80 AND ABOVE	$24,688

(Above prices are also applicable to all prior Releases currently being supported)

NOTES:

(1) A Separate License per processor model is required.
(2) All License Fees are payable in U.S. Funds.
(3) License Fees are payable within thirty (30) days from the License effective date.
(4) Processor Model Upgrade Fee is equal to the difference in the then current Group Fees.
(5) Maintenance Fee after the initial maintenance period provided with each individual Perpetual Software License(s) will be 18% of the GSA discounted Perpetual Software License Fee.

DESCRIPTION OF PRODUCT

PROC MFX
(for MFX for z/OS, MFX for z/VSE and MFX for CMS)
An Accelerator for SAS Sorting

YOUR KEY TO SAS SORT PERFORMANCE

PROC MFX is a high-performance replacement for the SAS-provided procedure PROC SORT. Compared to PROC SORT, PROC MFX reduces the resources required for sorting within SAS applications.

Sort processing with SAS often consumes as much as 30 percent of CPU time and EXCPs. Because sorting is such a large part of system activity, PROC MFX's efficiency results in noticeable improvements in overall system throughput. And the reduced elapsed time from PROC MFX means users see an immediate benefit: SAS applications complete faster.

Benchmark tests show dramatic performance advantages like those above for PROC MFX .

PROC MFX achieves such gains by providing a direct interface between SAS and SyncSort. This frees SyncSort to use the high-performance techniques - sophisticated access methods, path length minimization, 1/0 optimization - that have made SyncSort the most frequently used sort product.

PROC MFX is delivered on its own easily installed tape. No changes are required to existing programs that execute PROC SORT.

PROC MFX gives you the highest performance sort processing under SAS. Put simply, PROC MFX lets SyncSort be SyncSort. The bottom-line benefit to you: significant improvements in system throughput and response time.

"CURRENT IN-PRODUCTION"

PRODUCT PRICE SCHEDULE
PROC MFX

PRODUCT PRICE SCHEDULE
PROC SyncSort MVS
RELEASE 2.1

132-33
PERPETUAL SOFTWARE
LICENSE
(Includes Maintenance for a period of one year)

INCLUDES GSA NEGOTIATED DISCOUNT

CPU MODEL	
GROUP 20 AND BELOW	$ 4,284
GROUP 30	$ 5,711
GROUP 40	$ 7,137
GROUP 50	$ 8,569
GROUP 60	$10,883
GROUP 70	$13,701
GROUP 80 AND ABOVE	$16,928

(Above prices are also applicable to all prior Releases currently being supported)

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DESCRIPTION OF PRODUCT

ONLINE MFX
(for MFX for z/OS, MFX for z/VSE and MFX for CMS)

YOUR KEY TO SORT PRODUCTIVITY

ONLINE MFX gives you a standard method for development sort applications that fully utilize SyncSort's powerful performance-enhancing functionality. So simple even non-programmers can use it, ONLINE MFX eliminates the need to train programmers in SyncSort syntax. The major benefit: intelligently designed applications that save system resources and programming time.

SIMPLE MENU-DRIVEN INTERACTIVE DESIGN

Choosing features from the main menu brings up a series of full-screen panels where users simply fill in required information. ONLINE MFX for WS uses the entries to generate error-free SyncSort control statements plus JCL.

MORE THAN A PROGRAMMING TOOL

OnLine-SyncSort for Mainframe can fundamentally improve sort development and processing at your data center.

- Improves system efficiency
- Reduces training needs
- Standardizes your sort applications
- Simplifies "re-engineering"
- Reduces program development time

ONLINE MFX ensures that applications programmers will utilize the full functionality of SyncSort to product efficient sort applications - without extensive training or the need to know details of SyncSort syntax.

IMPROVES SYSTEM EFFICIENCY

ONLINE MFX ensures sort applications that minimize resource use (CPU time, elapsed time, and I/Os). For example, OnLine-SyncSort for Mainframe eliminates a common inefficiency by automatically removing unused data before sort processing.

Error-free applications, that run on the first try, reduce the system overhead-compiling linking, re-running-associated with debugging.

Menu-driven design, which presents an array of SyncSort functions to choose from, ensures that programmers will develop JCL-invoked sorts that use SyncSort control statements. The alternative-COBOL or PLA programs that invoke the sort-uses significantly more system resources.

REDUCES TRAINING NEEDS

Resource-efficient applications are achieved without extensive training. Simple design, context-sensitive HELP, and immediate error flagging make ONLINE MFX virtually self-teaching.

STANDARDIZES YOUR SORT APPLICATIONS

ONLINE MFX generates automatically documented control statements in standard fori-nat plus the JCL to run the application. The result is a pool of efficient applications that look as if one person wrote them.

SIMPLIFIES "RE-ENGINEERING"

ONLINE MFX helps programmers re-examine and "re-engineer" existing applications to run more efficiently, especially resource-intensive internal/invoked sorts.

REDUCES PROGRAM DEVELOPMENT TIME

Programmers develop applications in a fraction of the time required for a corresponding PL/I or COBOL program and manage them from within ONLINE MFX itself.

Even non-programmers can use ONLINE MFX, reducing the need for programmers to develop ad hoc applications.

YOUR KEY TO SORT PRODUCTIVITY

Sort applications are heavy consumers of system resources. That's why so many MVS, MVS/XA, MVS/ESA, VM and VSE shops use ONLINE MFX, the perfect gateway to MFX for MVS which gives programmers easy access to the full power of SyncSort functionality. The result: a flow of well-designed applications that can optimize sort usage at your data center.

"CURRENT IN-PRODUCTION"

PRODUCT PRICE SCHEDULE
ONLINE MFX

132-33
PERPETUAL SOFTWARE
LICENSE
(Includes Maintenance for a period of one year)

INCLUDES GSA NEGOTIATED DISCOUNT

CPU MODEL	
GROUP 20 AND BELOW	$ 4,284
GROUP 30	$ 5,711
GROUP 40	$ 7,137
GROUP 50	$ 8,569
GROUP 60	$10,883
GROUP 70	$13,701
GROUP 80 AND ABOVE	$16,928

(Above prices are also applicable to all prior Releases currently being supported)

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DESCRIPTION OF PRODUCT

COBOL MFX

YOUR KEY TO COBOL SORT PERFORMANCE

COBOL MFX is a fully automatic facility for improving COBOL sort performance. COBOL MFX gives SyncSort control of sort-related I/O processing otherwise done less efficiently by COBOL, resulting in significant improvements in CPU Time, EXCPs and Elapsed Time.

The product is delivered on its own easily installed tape. It requires no changes to existing programs or procedures, but MFX for MVS Release 3.3 or above must be installed.

"CURRENT IN-PRODUCT"

PRODUCT PRICE SCHEDULE
COBOL MFX
RELEASE 1.0B

132-33
PERPETUAL SOFTWARE
LICENSE
(Includes Maintenance for a period of one year)

INCLUDES GSA NEGOTIATED DISCOUNT

CPU MODEL	
GROUP 20 AND BELOW	$ 4,284
GROUP 30	$ 5,711
GROUP 40	$ 7,137
GROUP 50	$ 8,569
GROUP 60	$10,883
GROUP 70	$13,701
GROUP 80 AND ABOVE	$16,928

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DESCRIPTION OF PRODUCT

PipeSort MFX

PipeSort MFX is an innovative software product that works with MFX for z/OS to run multiple sorts simultaneously. PipeSort MFX reads the input data only once to produce differently sorted output data sets.

PipeSort MFX can cut total elapsed time by more than 50 percent compared to running consecutive sorts.

PipeSort MFX performs up to eight simultaneous sorts and outputs a file for each set of sort keys (SORT control statements). The complete range of SyncSort control statements and PARMs is available for the individual sort operations. Thus, in addition to different sequencing, the records in each output file can be uniquely selected and reformatted (with INCLUDE/OMIT and INREC/OUTREC control statements.)

ELAPSED TIME SAVINGS

PipeSort MFX exploits the rich multi-programming potential of z/OS to cut total elapsed time by replacing serial with parallel sort execution.

Benchmark tests on a one-gigabyte DASD file sorted in three different sequences compared consecutive executions versus PipeSort Release 1. 1. The consecutive executions required 1 hr 9 minutes total elapsed time. PipeSort Release 1. 1 needed only 31 minutes, a savings of 55%. Even greater savings can be achieved when PipeSort Release 1. 1 replaces more individual sorts.

PipeSort MFX reads the input file only once and distributes the input records to multiple simultaneous SyncSort executions. This method enables PipeSort Release 1. 1 to eliminate the considerable 1/0 overhead involved in reading the same input data for every sort.

RESOURCE REQUIREMENTS

You must have adequate resources to run PipeSort MFX. 1 successfully. PipeSort MFX requires all the resources (DASD space, virtual storage, expanded storage) that would have been spread over the individual sort executions. For example, if PipeSort Release 1. 1 combines five sorts that each require 50 cylinders of DASD, PipeSort Release 1. 1 will need 250 cylinders. Also, CPU time may increase compared to the sum of CPU times for individual sorts.

COMPATIBILITY AND IMPLEMENTATION

PipeSort MFX requires MFX for z/OS or higher and is easily installed. SyncSort control statements in existing applications can be used without change.

Implementation is through simple JCL that includes DD statements specific to PipeSort MFX; for example, SRTnCNTL DD statements replace SYSIN DD statements.

PipeSort MFX may also be invoked from a user program, which may have input/output exits.

"CURRENT IN-PRODUCTION"

PRODUCT PRICE SCHEDULE
PipeSort MFX

132-33
PERPETUAL SOFTWARE
LICENSE
(Includes Maintenance for a period of one year)

INCLUDES GSA NEGOTIATED DISCOUNT

CPU MODEL	
GROUP 20 AND BELOW	$ 4,284
GROUP 30	$ 5,711
GROUP 40	$ 7,137
GROUP 50	$ 8,569
GROUP 60	$10,883
GROUP 70	$13,701
GROUP 80 AND ABOVE	$16,928

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DESCRIPTION OF PRODUCT

MFX for z/VSE

MFX for z/VSE is a high performance sort/merge/copy utility designed for IBM VSE/ESA operating systems. MFX for z/VSE provides significant savings in program and supervisor CPU time, elapsed time, and I/0 activity.

PERFORMANCE

In benchmark tests of MFX for z/VSE against competitive products, SyncSort saves up to 30-40% of total CPU time, 30-40% of elapsed time and 40-60% of SIOs.

MFX for z/VSE achieves superior performance through optimization for specific computer make and model, proprietary sorting algorithms, advanced access methods, and Data Space utilization. MFX for z/VSE dynamically responds to system activity such as real and virtual storage availability, and paging rates, to ensure optimum performance.

In a VSE/ESA environment, MFX for z/VSE exploits Data Space technology with two unique features, "virtual library" and "virtual sortwork". These capabilities maximize the use of high speed virtual memory, minimizing resource consumption and reducing elapsed time. MFX for z/VSE also exploits multi-processing and the Turbo Dispatcher.

MFX for z/VSE 's Dynamic Storage Manager ensures that all sorts attain optimum performance by intelligently managing a Data Space so that numerous concurrent sorts can exploit virtual sortwork.

SORT/MERGE/COPY PROCESSING

- EBCDIC, culturally sensitive, or user-defined collating sequences.
- Up to 64 control fields, with total length up to 4092 bytes. Fields may be located anywhere in the record.
- All standard field formats, including character, binary, packed decimal, zoned decimal, fixed point, floating point, and various signed formats.
- Additional field formats used in conjunction with a fixed or sliding century window to correctly sequence 2-digit year data.
- High performance MERGE combines up to 32 pre-sequenced data sets into one output data set sequenced identically to the input data sets.
- High performance copy function (SORT FIELDS=COPY) can be used alone or with data editing.

INPUT/OUTPUT

- SAM, VSAM, and VSAM-managed SAM formats and devices, including devices connected via the ESCON architecture and VSAM data compression.

- Fixed-length and variable-length records.

- Processing of variable-length records shorter than control field.

INTERMEDIATE FILES

- Disk.

- Automatic secondary sortwork allocation with up to 31 volumes.

- Automatic space release for DASD output files via disk space manager.

RESOURCE MANAGEMENT FEATURES

- Dynamic Storage Manager. Automatically monitors and controls memory utilization, and reduces or eliminates physical sortwork I/O for concurrent sorts. Optimizes the use of a Data Space by allowing up to 15 concurrent sorts running in different partitions to use the virtual sortwork area. Maximizes sort performance while optimizing overall system throughput. Exploits multiprocessors.

- Disk Space Manager Interface. Minimizes DASD resources used for sorting while preventing "sortwork capacity exceeded" abends. Compatible with all disk space managers.

- The SyncSort-EPIC Interface. Provides enhanced support for EPIC/ VSE disk and tape management. The enhanced support includes the following:

  - Automatic re-blocking of SORTIN/SORTOUT.

  - Support for concatenated SORTIN.

  - Improved performance for EPIC-controlled SORTIN.

DATA UTILITY FEATURES

- Multiple Output. Directs output to multiple SORTOUT data sets. Requires only one sort pass. Data can be grouped, uniquely selected and edited, and sent to the same or different output devices.

- SortWriter. Creates high performance report writing applications without the need for COBOL. Reports can include report, page and section headers and trailers; totals and subtotals; maximum, minimum and average calculations; record counts and subcounts; page numbering and automatic dating; conversion/editing of numeric data fields.

- Data Editing. Permits easy selection and formatting of records using simple control statements:

  - INCLUDE/OMIT selects specific input records based on comparisons between fields or between fields and constants. Supports substring comparisons. Supports complex logical conditions with multiple nesting levels.

  - INREC/OUTREC reformats and edits input/output records: Adds, removes, and reorders fields; inserts spaces, characters, binary zeros, hexadecimal digits, sequence numbers; positions fields with column alignment; converts numeric data to printable format or numerical format; edits numeric data with supplied or user-defined editing masks; supports string match and replacement; allows arithmetic calculations amoung fields within in a record and among fields and constants; converts variable length input records to fixed length output records.

  - SUM consolidates records with equal sort keys and optionally totals values in specified fields. Eliminates duplicate-keyed records (SUM FIELDS=NONE). Records deleted by SUM processing may be written to a separate file (XSUM).

  - SKIPREC/STOPAFT processes or skips a specific number of records.

EXIT SUPPORT

- Supports many user exits, including E15 and E35 exits written in C, COBOL, Assembler or REXX.

- Supports FASTSRT parrn of VSCOBOL II and COBOL/VSE compliers.

UTILITY PROGRAMS

- Sort Execution analysis (SYNCSMF).

- Default options report (SYNCLIST).

- High performance creation of VSAM alternate index files (SYNCBIX).

- Multiple concurrent sorting (SSRAM).

INVOCATION

- Invoked through JCL or through programs written in COBOL, PL/l, or Assembler.

COMPATIBILITY

- Executes on all 390 and 370 Architecture computers with VSE/ESA (and equivalent Amdahl and Hitachi computer systems).

- Compatible with existing applications written for IBM's DFSORT, SM2 or for prior SyncSort releases. Requires no changes to current JCL, control statements, parameter lists, or exits. No need to recompile COBOL programs.

- Supports and exploits current hardware and operating system features, including Data Space, ECKD device architecture, and virtual storage and real storage above 16MB.

- Supports and exploits any device processed by SAM and VSAM access methods, including all currently available DASD from IBM (plus equivalent devices from Amdahl, Hitachi, EMC, STK, and others), 34xx and 3590 tape units and IDRC.

INSTALLATION

- Provides an easy-to-use interactive program that creates customized installation JCL. The installation process simply requires executing the customized JCL.

- Provides PROCs that can be used to determine the way in which SyncSort VSE resides in the SDL/SVA.

"CURRENT IN-PRODUCTION"

PRODUCT PRICE SCHEDULE
MFX for z/VSE

INCLUDES GSA NEGOTIATED DISCOUNT

CPU MODEL	132-32 TERM SOFTWARE LICENSE	132-32 TERM SOFTWARE LICENSE CESSATION PERIOD	132-33 PERPETUAL SOFTWARE LICENSE (IncludesMaintenance for a period of one year)
Group 10	$134.00/month	36 Months	$2,993
Group 15	$145.00/month	36 Months	$3,232
Group 18	$150.00/month	36 Months	$3,471
Group 20	$157.00/month	36 Months	$4,000
Group 25	$174.00/month	36 Months	$4,359
Group 28	$199.00/month	36 Months	$4,978
Group 29	$215.00/month	36 Months	$5,436
Group 30	$232.00/month	36 Months	$5,880
Group 31	$244.00/month	36 Months	$6,414
Group 32	$268.00/month	36 Months	$7,372
Group 35	$292.00/month	36 Months	$8,020
Group 38	$313.00/month	36 Months	$8,783
Group 40	$344.00/month	36 Months	$9,626
Group 50	$366.00/month	36 Months	$10,534
Group 60	$402.00/month	36 Months	$11,541
Group 70	$438.00/month	36 Months	$12,638
Group 80	$472.00/month	36 Months	$13,835

(Above prices are also applicable to all prior Releases currently being supported)

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DESCRIPTION OF PRODUCT

MFX for CMS

MFX for CMS is a high-performance sort, merge and copy utility designed for the IBM VM/SP, HPO,VM/XA and VM/VESA operating systems. It provides substantial improvements over competitive products in sort performance and in overall system throughput. In addition, MFX for CMS provides unique features that increase programmer productivity and deliver efficient production applications.

HIGHLIGHTS

- Reduced Resource Consumption. MFX for CMS provides dramatic savings vs. other sort products in TTIME, VTIME, SlOs, and elapsed time.

- Improved System Throughput. Syncsort's resource management facility frees operating system resources to help speed other jobs.

- Enhanced Programmer Productivity. SyncSort's functionality can deliver a wide range of ad hoc and production applications quickly and efficiently.

- Easy and Fast Implementation. MFX for CMS is invoked via the SSORT command and is also compatible with either MVS or VSE style invoking programs written in COBOL, FORTRAN, PL/l, or Assembly language. A convenient menu-driven utility simplifies installation.

PERFORMANCE

MFX for CMS achieves its superior performance and resource economy by employing sophisticated, proprietary sorting algorithms, access methods, data spaces and optimization techniques. Dynamic virtual storage management based on system paging rate optimizes system throughput.

SyncSort's performance techniques result in significant overall improvements in the following areas:

- Reduced start I/0 (SIO)
- Reduced TTIME
- Reduced VTIME
- Improved device and channel utilization
- Reduced system paging via dynamic virtual storage management
- Improved system throughput

FEATURES

SyncSort provides a powerful set of programmer productivity extensions for building ad hoc and production applications quickly and performing sort-related tasks easily and efficiently. They include:

- Multiple Output. Directs output to multiple SORTOUT data sets, which may be on different devices. Each data set can be written to a unique output device, containing the same or unique records, which may be independently reformatted before output (OUTFIL).

- SortWriter. Allows creation of high-performance, comprehensive, formal report writing applications, without the need for COBOL. Provides for:

  - Reports, Page and Section headers and trailers

  - Record COUNTs and SUBCOUNTs

  - Page numbering and automatic dating

  - Conversion/editing of numeric data amounts

- Data Editing. Permits easy selection and formatting of input records using simple control statements:

  - INCLUDE/OMIT Selects specific input records.

  - INREC/OUTREC Reformats, converts and edits data fields.

  - SUM Summarizes numeric fields and can eliminate records which identical control fields.

- Fast Copy. Provides a faster, more efficient alternative for copying without sorting (FIELDS=COPY). This facility can use the INCLUDE/OMIT, INREC/OUTREC, and OUTFIL control statements to specify record selection and report formatting.

- COPYFILE Interface. Provides an automatic high-performance alternative to COPYFILE. This facility dramatically reduces resource consumption in these copy operations.

- Dynamic SORTWK Allocation. Sort work TDISKS, if needed, are defined dynamically for primary and up to eight secondary work areas.

- Year 2000. Provides new field formats used in conjunction with a fixed or sliding century window to correctly sequence 2-digit years.

- ALTSEQ. Provides for user-defined alternative collating sequences that are specified at installation or execution time.

- EQUALS. Preserves the order, from input to output, of records with equal control fields. May be installation standard or PARM value.

- COMPARE Utility. Compares two files, record for record, byte for byte, bypassing the process of sorting.

- HELP Facility. Provides information on sort control statement parameters and syntax, the SSORT command, and messages.

METHODS OF USE

MFX for CMS is invoked through the SSORT Command or through COBOL, FORTRAN, PL/1 or Assembler language programs. Sort control statements can be read from the terminal, a CMS file, or the virtual reader. Interactive prompting for sort control fields and record information is also available.

For additional programming flexibility, REXX exits and user exits E15, E32, and E35 are supported in either MVS and VSE formats. The $ORTPARM facility can be used to override parameters and control statements passed by invoking programs. Support is provided for the VS COBOL II FASTSRT option, in which SyncSort performs input and output processing.

COMPATIBILITY

MFX for CMS sorts and merges fixed, variable length, or spanned variable length records in EBCDIC or ASCII formats or culturally sensitive sequencing. It support all CMS file formats, including the CMS Shared File System, VSAM, tape files, RDR and PRT. Input and output file characteristics can be specified through FILEDEF or DLBL statements. Multifile input may be from a mixture of disk, tape, and the virtual reader. SyncSort processes up to 64 control fields, with a total length of up to 4092 bytes. Sort keys may be binary, character, decimal, floating point, fixed point, or ASCII data format.

- Executes on all 370 and 390 Architecture computers with VM/SP, HPO, VM/XA or VM/ESA operating systems or equivalents.

- Supports all CKD and FBA Direct Access Devices and Controllers including 3880s, 3990s, 9340s and all IBM or compatible tape devices for the VM operating system.

INSTALLATION

MFX for CMS may be installed:

- Via a full-screen installation procedure (SYNCDEF).
- As a discontiguous saved segment.
- Using the SYNCPLI EXEC to activate internal sorts for PL/l.

"CURRENT IN-PRODUCTION"

PRODUCT PRICE SCHEDULE
MFX for CMS

INCLUDES GSA NEGOTIATED DISCOUNT

132-32 TERM SOFTWARE LICENSE	132-32 TERM SOFTWARE LICENSE CESSATION PERIOD
$289.00/month	60 Months

132-33
PERPETUAL SOFTWARE LICENSE
(Includes Maintenance for a period of one year)

INCLUDES GSA NEGOTIATED DISCOUNT

CPU MODEL	
GROUP 30 AND BELOW	$ 6,185
GROUP 40	$ 9,895
GROUP 50	$12,384
GROUP 60	$14,848
GROUP 70	$18,558
GROUP 80 AND ABOVE	$22,269

(Above prices are also applicable to all prior Releases currently being supported)

NOTES:

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DESCRIPTION OF PRODUCT

SyncSort UNIX
Release 3

NOTE: SYNCSORT UNIX IS NO LONGER BEING SOLD BY SYNCSORT. THE PRICES AND INFORMATION CONTAINED HEREIN PERTAIN SOLELY FOR THE RENEWAL OF EXISTING SYNCSORT UNIX LICENSES.

SyncSort is a high performance sort/merge/copy join utility. It handles a wide variety of file, record, and data formats provides general purpose record level processing for file and data conversion, and minimizes sorting time for large volumes of data.

PERFORMANCE

SyncSort reduces sort execution times while improving overall system throughput. Proprietary sorting algorithms, I/O optimization, parallel processing and dynamic environmental monitoring techniques result in significantly reduced CPU time, elapsed time and disk I/O activity.

EASE OF USE

Visual SyncSort is the graphical user interface for SyncSort. It allows you to create, maintain, and run SyncSort applications. You can run these applications on your Windows desktop system where Visual SyncSort runs, or on any system where the appropriate SyncSort UNIX server is installed. You can run the applications immediately through the graphical interface, or you can run them later from the UNIX command line, from an invoking batch script, or from a user-written program.

SyncSort provides a plug-in replacement capability for the UNIX system sort, the Merant Micro Focua COBOL sort, the Software AG NATURAL sort, the SAS sort, and the IBM DB2 LOAD sort.

APPLICATION TYPE

SyncSort performs a sort, merge, copy, or join application:

- A sort application reads records from the source, reorders them according to the specified sort keys, and writes them to the target.

- A merge application reads presorted records from one or more source files, merges them according to the specified merge keys, and writes them to a single target file.

- A copy application reads records from the source and writes them to the target without changing the order of the record.

- A join application reads records from two sources, joins each record from one source with zero or more records from the other source according to the specified join type and join key, and writes the new joined records to the target.

RECORD PROCESSING FEATURES

Selection

- Conditional filtering includes or omits records on the basis of comparisons between field contents and constants or on the basis of the file from which the records come.

- Bulk filtering includes or omits specified numbers of records.

Reformatting

- Edits, inserts, and removes fields within records.

- Reformats differently based on selection criteria.

- Assigns values to fields based on selection criteria and converts data in fields from one format to another.

Summarization

- Aggregates records with duplicate sort keys into a single record, counting records and totaling numeric fields.

FILE AND DATA FORMS

SyncSort processes the following formats:

Sources and Targets

- Sequential files
- Indexed files
- Records passed from/to standard input/output
- Records passed from/to an invoking program

Record Formats

- Fixed length
- Delimited text
- Variable length
- Fortran unformatted
- Micro Focus variable
- Micro Focus line sequential

Data Types

- Character
- Edited numeric
- Date/Time
- Packed decimal
- Signed integer
- Unsigned integer
- Floating point
- Bit
- Unsigned decimal
- Leading separate sign decimal
- Trailing separate sign decimal
- Leading embedded sign decimal (Micro Focus format and alternative format)
- Trailing embedded sign decimal (Micro Focus format and alternative format)

Collating Sequences

- Standard (ASCII, EBCDIC, folded ASCII, folded EBCDIC, Multinational)
- Locale defined
- User defined (one-for-one, one-for-two, two-for-one, and two-for-two replacements)

INVOCATION

SyncSort can be invoked from the Visual SyncSort graphical interface, from the command line through the shell commands **syncsort** or **ssort,** from the UNIX **sort** command, from Micro Focus COBOL programs through the SORT and MERGE verbs, from Software AG NATURAL SORT statements, from SAS applications through the sort procedure, and from the IBM DB2 LOAD utility, and from program calls in any system-supported language through the sync_subroutines.

SyncSort can be easily integrated with the most data warehouse staging tools to improve sort and aggregation performance.

INSTALLATION

SyncSort is distributed on CD or downloaded via the web, and installs in less than five minutes.

Product Price Schedules
SyncSort for UNIX

FEES NOTED BELOW DO NOT INCLUDE GSA DISCOUNTS.
SEE PAGE 80 FOR APPLICABLE DISCOUNTS.

All Hardware Manufacturers
Server Tier levels are provided on pages 66

ServerTier Level	132-33 PERPETUAL SOFTWARE LICENSE
Tier 1	$3,878.00 per core
Tier 2	$5,816.00 per core
Tier 3	$7,755.00 per core
SDK	$20,625.00 per site

(Above prices are also applicable to all prior Releases currently being supported)

NOTES:

(1) Pricing above is per core
(2) SyncSort UNIX server licenses entitle Customer to unlimited workstation Licenses at no cost.
(3) License Fees are payable within 30 days from the License effective date.
(4) Processor Tier Upgrade Fee is equal to the difference in the then current Tier fees.
(5) Maintenance will be calculated at 20% of the Perpetual License Fee for 24X7/365 maintenance and support.
(6) The reinstatement of lapsed maintenance will require the payment of a reinstatement fee, The fee will be a prorated 30% of the then current list Perpetual License Fee of all of the licensed Product components for each lapsed year. Upon reinstatement, the 20% annual maintenance fee.

DESCRIPTION OF PRODUCT

FilePort
Release 2

FilePort converts IBM mainframe data sets to UNIX files, and UNIX files to IBM mainframe data sets.

The data to be converted can contain any combination of character, decimal, packed decimal and binary fields.

PROCESSING OVERVIEW

FilePort takes a data file and one or more record layouts as input. It uses the record layouts to distinguish between different fields in the records and converts the data according to the type of each field (character, decimal, packed decimal, binary, etc.) and the machine architecture of the UNIX system (big-endian or little-endian).

The record layouts can be passed in existing COBOL copybooks, or defined through FilePort options.

If the records in the input file do not all have the same layout, different record layouts can be supplied, and conditions can be specified to determine which layout to use for each record.

FilePort writes the converted records to an output file.

MAINFRAME TO UNIX

For conversion from mainframe to UNIX, the mainframe data set can be on IBM standard labeled or unlabeled tape, in a UNIX file system, or piped through standard input.

The record layout describes the positions and types of the fields in the mainframe records.

The UNIX output file can be generated as either a binary file or a text file (see "UNIX File Formats", below). The file can be written to tape or to the UNIX file system, or piped through standard output.

UNIX TO MAINFRAME

For conversion from UNIX to mainframe, the UNIX input file can be either a binary file or a text file (see "UNIX File Formats", below). The file can be on tape, in the UNIX file system, or piped through standard input.

The record layout describes the required positions and types of the fields to be created in the mainframe records.

The mainframe data set can be written to unlabeled tape or to a UNIX file system, o piped to standard output.

MAINFRAME DATA SET FORMATS

The mainframe data set formats supported are IBM MVS or VSE sequential data sets with fixed length (blocked or unblocked) or variable length (blocked) records (F, FB, V, VB, VBS).

In addition to the standard mainframe data set record formats, the data set can be in **ftp** variable record format (unblocked variable).

UNIX FILE FORMATS

FilePort supports both binary and text file format on UNIX.

A UNIX binary file is a direct equivalent of a mainframe fixed or variable length data set, but with UNIX data types and format. A UNIX binary file can be processed, for example, by a UNIX COBOL program. Variable length UNIX binary files can be in standard Micro Focus format or FORTRAN unformatted format, or with simple two-byte record descriptors.

A UNIX text file contains records with all data in display format, fields optionally compressed by removing spaces and non-significant zeros, fields optionally separated by a user-defined special character (comma, space, etc.) and each record terminated by a linefeed character. A UNIX text file can be used, for example, for input to a database load utility or to a spreadsheet.

DATA TYPES

FilePort supports the standard data types in both their mainframe and UNIX formats, as follows:

- binary-floating point, signed integer (fixed point), unsigned integer
- character - EBCDIC/ASCII
- decimal - edited numeric, unsigned decimal, embedded signed decimal (zoned decimal), separate signed decimal
- packed decimal.

INSTALLATION & INNVOCATION

FilePort runs on all major UNIX systems. It needs no installation other than the **tar** command and executes by use of the **fileport** command.

FilePort Release 2 can be licensed to convert from mainframe to UNIX, to convert from UNIX to mainframe, or to convert in both directions.

"CURRENT IN-PRODUCTION"

Product Price Schedules
FilePort

FEES NOTED BELOW DO NOT INCLUDE GSA DISCOUNTS.
SEE PAGES 80 FOR APPLICABLE DISCOUNTS.

All Hardware Manufacturers
Server Tier levels are provided on pages 66

	One Way		Two Way	
	Fee for Base Server	Fee for Cores Added to base	Fee for Base Server	Fee for Cores Added to base
Tier 1 Server	$ 4,988	$ 4,988	$ 7,481	$ 7,481
Tier 2 Server	$ 9,975	$ 9,975	$14,963	$14,963
Tier 3 Server	$14,963	$14,963	$22,444	$22,444

NOTES:

(1) A Separate License per processor model is required.
(2) All License Fees are payable in U.S. Funds.
(3) License Fees are payable within thirty (30) days from the License effective date.
(4) Processor Tier Upgrade Fee is equal to the difference in the then current Tier Fees.
(5) Maintenance will be calculated at 20% of the Perpetual License Fee for 24X7/365 maintenance and support.
(6) The reinstatement of lapsed maintenance will require the payment of a reinstatement fee. The fee will be a prorated 30% of the then current list Perpetual License Fee for all of the licensed components for each lapsed year. Upon reinstatement, the 20% annual maintenance fee.
(7) One Way Perpetual License is either the UNIX to Mainframe option or the Mainframe to UNIX option; Two Way includes both options.
(8) Maximum One Way Perpetual License Fee is $20,000 and Maximum Two Way Perpetual License Fee is $30,000 (this amount is prior to the application of the GSA discounts noted below).

FilePort
Discount Schedule A

(Volume Discount on processor models purchased in a single transaction)

Processor Model	%Discount
First through tenth	25%
Eleventh and above	30%

DESCRIPTION OF PRODUCT

SyncSort for Windows
Release 3

NOTE: SYNCSORT FOR WINDOWS IS NO LONGER BEING SOLD BY SYNCSORT. THE PRICES AND INFORMATION CONTAINED HEREIN PERTAIN SOLELY FOR THE RENEWAL OF EXISTING SYNCSORT UNIX LICENSES.

SyncSort for Windows is a high performance sort/merge/copy/join utility. It handles a wide variety of file, record and data formats, provides general purpose record level processing for file and data conversion, and minimizes sorting time for large volumes of data.

PERFORMANCE

SyncSort for Windows reduces sort execution times while improving overall system throughput. Proprietary sorting algorithms, I/O optimization, parallel processing, and dynamic environmental monitoring techniques result in significantly reduced CPU time, elapsed time, and disk I/O activity.

EASE OF USE

Visual SyncSort is the graphical user interface for SyncSort. It allows you to create, maintenance, and run SyncSort applications. You can run these applications on the Windows desktop system where Visual SyncSort runs, or on any other Windows system where the appropriate SyncSort for Windows server is installed. You can run the applications immediately through the graphical interface, or you can run them later from the MSDOS command prompt, via an ActiveX control, from an invoking batch script, or from a user written program.

SyncSort provides a plug-in replacement capability for the Merant Micro Focus COBOL sort, the Software AG NATURAL sort, the SAS and the IBM DB2 LOAD sort.

APPLICATION TYPE

- SyncSort performs a sort, merge, copy, or join application:

- A sort application reads records from the source, reorders them according to the specified sort keys, and writes them to the target.

- A merge application reads presorted records from one or more source files, merges them according to the specified merge keys, and writes them to a single target file.

- A copy application reads records from the source and writes them to the target without changing the order of the records.

- A join application reads records from two sources, joins each record from one source with zero or more records from the other source according to the specified join type and join key, and writes the new joined records to the target.

RECORD PROCESSING FEATURES

Selection

- Condition filtering includes or omits records on the basis of comparisons between field contents and constants or on the basis of the file from which the records come.

- Bulk filtering includes or omits specified numbers of records.

Reformatting

- Edits, inserts, and removes fields within records.

- Reformats differently based on selection criteria

- Assigns values to fields based on selection criteria and converts data in fields from one format to another.

Summarization

- Aggregates records with duplicate sort keys into a single record, counting records and totaling numeric fields.

FILE AND DATA FORMATS

SyncSort processes the following formats:

Sources and Targets

- Sequential files
- Indexed files
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Record Formats

- Fixed length
- Delimited text
- Variable length
- Fortran unformatted
- Micro Focus variable
- Micro Focus line sequential

Data Types

- Character
- Edited numeric
- Date/Time
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- Signed integer
- Unsigned integer
- Floating point
- Bit
- Unsigned decimal
- Leading separate sign decimal

- Trailing separate sign decimal
- Leading embedded sign decimal (Micro Focus format and alternative format)
- Trailing embedded sign decimal (Micro Focus format and alternative format)

Collating Sequences

- Standard (ASCII, EBCDIC, folded ASCII, folded EBCDIC, Multinational)
- Locale defined
- User defined (one-for-one, one-for-two, two-for-one, and two-for-two replacements)

INVOCATION

SyncSort for Windows can be invoked from the Visual SyncSort graphical interface, from the command prompt through the command **syncsort,** from Micro Focus COBOL programs through the SORT and MERGE verbs, from Software AG NATURAL SORT statements, from SAS applications through the sort procedure, from the IBM DB2 LOAD utility, and from program calls in any system-supported language through the sync_subroutines or via an ActiveX control.

SyncSort can be easily integrated with most data warehouse staging tools to improve sort and aggregation performance.

INSTALLATION

SyncSort is distributed on CD or downloaded via the web, and installs in less than five minutes.

PRODUCT PRICE SCHEDULE

SyncSort for Windows

All Hardware Manufacturers
Server Tier levels are provided on pages 66

ServerTier Level	132-33 PERPETUAL SOFTWARE LICENSE
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(Above prices are also applicable to all prior Releases currently being supported)

NOTES:

(1) Pricing above is per core
(2) SyncSort for Windows server licenses entitle Customer to unlimited workstation Licenses at no cost.
(3) License Fees are payable within 30 days from the License effective date.
(4) Processor Tier Fee is equal to the difference in the then current Tier fees.
(5) Maintenance will be calculated at 20% of the Perpetual License Fee for 24X7/365 maintenance and support.
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Visual SyncSort
Release 3

Visual SyncSort is a high performance sort/merge/copy/join utility. It handles a wide variety of file, record, and data formats, provides general purpose record level processing for file and data conversion, and minimizes sorting time for large volumes of data.

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EASE OF USE

Visual SyncSort is the graphical user interface for SyncSort. It allows you to create, maintain, and run SyncSort applications on the Windows desktop system where Visual SyncSort runs, or on any other system where the appropriate SyncSort UNIX or SyncSort for Windows server is installed. You can run the applications immediately through the graphical interface, or you can run them later from the UNIX command line, from the MSDOS command prompt, via an ActiveX control, from an invoking batch script, or from a user-written program.

SyncSort provides a plug-in replacement capability for the Merant Micro Focus COBOL sort, the Software AG NATURAL sort, the SAS and the IBM DB2 LOAD sort.

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- Trailing separate sign decimal
- Leading embedded sign decimal (Micro Focus format and alternative format)

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Collating Sequences

- Standard (ASCII, EBCDIC, folded ASCII, folded EBCDIC, Multinational)
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- User defined (one-for-one, one-for-two, two-for-one, and two-for-two replacements)

INVOCATION

SyncSort for Windows can be invoked from the Visual SyncSort graphical interface, from the command prompt through the command **syncsort,** from Micro Focus COBOL programs through the SORT and MERGE verbs, from Software AG NATURAL SORT statements, from SAS applications through the sort procedure, from the IBM DB2 LOAD utility, and from program calls in any system-supported language through the sync_subroutines or via an ActiveX control.

SyncSort can be easily integrated with most data warehouse staging tools to improve sort and aggregation performance.

INSTALLATION

SyncSort is distributed on CD or downloaded via the web, and installs in less than five minutes.

"CURRENT IN-PRODUCTION"

PRODUCT PRICE SCHEDULE
Visual SyncSort
Release 3

Visual SyncSort

License Fee (1 unit)	$472.50
License Fee (5 pack)	$1,893.75
License Fee (10 pack)	$3,375.00
License Fee (25 pack)	$8,268.75
License Fee (100 pack)	$31,237.50

(NT Workstation, Windows/9x, or Windows 2000 Professional Edition, 1 application creator (GUI) and 1 Server component that both run on the same PC and will only execute self created sorts, serialized)

(Above prices are also applicable to all prior Releases currently being supported)

Notes:

(1) License Fees are payable within 30 days from the License effective date.
(2) Maintenance will be calculated at 20% of the Perpetual License Fee for 24X7/365 maintenance and support.
(3) The reinstatement of lapsed maintenance will require the payment of a reinstatement fee, The fee will be a prorated 30% of the then current list Perpetual License Fee of all of the licensed Product components for each lapsed year. Upon reinstatement, the 20% annual maintenance fee.

Visual SyncSort
Discount Schedule

(Volume Discount on processor models purchased in a single transaction)

Processor Model	%Discount
First through tenth	25%
Eleventh and above	30%

DESCRIPTION OF PRODUCT

MFX for z/OS

MFX for z/OS is a high performance sort/merge/copy utility. It is designed to exploit the advanced facilities of the z/OS operating system and zSeries 900 computers. MFX for z/OS also supports the OS/390 operating system and S/390 and compatible computers. MFX for z/OS provides significant savings in CPU time and I/O activity.

PERFORMANCE

MFX for z/OS is designed to provide significant performance benefits and operate efficiently in 31-bit or 64-bit environments.

MFX for z/OS exploits system characteristics to achieve significant reductions in total CPU time, problem state CPU time (TCB time), and EXCPs.

Performance techniques include optimization for specific computer make and model and specific I/O devices, proprietary sorting algorithms, and advanced access methods. SyncSort also exploits parallel access volume (PAV) technology on IBM 2105 (Shark) devices and EMC Symmetrix devices. Dynamic optimization responds to system activity such as CPU utilization, DASD contention, controller caching, real and virtual storage availability, and paging rates. SyncSort records system activity in its database and optimizes processing based on historical patterns.

In benchmark tests of MFX for z/OS against z/OS V1 DFSORT, SyncSort saves up to 35 percent total CPU time, 30 percent TCB time, and 50 percent EXCPs.

SORT/MERGE/COPY PROCESSING

- EBCDIC, ASCII, user-defined, or locale-defined collating sequence.
- Up to 128 control fields, with total length up to 4092 bytes. Fields in fixed length records can be anywhere in the record.
- Standard field formats, including character, binary, packed decimal, zoned decimal, fixed point, floating point, Y2K date formats, and various signed formats.
- High performance MERGE processing of up to 100 presequenced data sets into one sorted output data set.
- High performance COPY function (SORT FIELDS=COPY), used alone or with data editing.

RESOURCE MANAGEMENT FEATURES

- Dynamic Storage Management. Optimizes resource use by directing MFX for z/OS to select sortwork devices with the least contention and highest transfer rates and by allocating address space and data space to concurrently running sort jobs based on a balance between their needs, system load, and the needs of other jobs on the system.

- Dynamic Sortwork Allocation. Minimizes DASD resources used for sorting by acquiring sortwork incrementally throughout the sort step.

- MAXSORT. Sorts large data sets on limited DASD space. Includes automatic breakpoint/restart.

- PARASORT. Cuts elapsed time for sorts that read multiple volume or concatenated tape SORTIN data sets by processing the input volumes in parallel. Elapsed time reductions of up to 20 percent for 2-way input and 33 percent for 4-way input can be achieved.

VISUAL MFX for z/OS

MFX for z/OS incorporates functionality to integrate Visual MFX for z/OS with MFX for z/OS mainframe processing. Visual MFX for z/OS is a separately available PC application that is designed to allow programmers and non-programmers alike to easily create and manage MFX for z/OS applications for the mainframe environment. With Visual MFX for z/OS, you can create new sort, merge, and copy applications, or you can import and modify existing ones. Visual MFX for z/OS saves programmer time while taking full advantage of the processing power of MFX for z/OS.

DATA UTILITLY FEATURES

- DB2 Query. Allows SyncSort SORT or COPY operations to directly retrieve data from a DB2 database based on a query specified by an SQL SELECT statement. The DB2 Query feature improves performance by eliminating the need for setup steps and user-written exits. Most SyncSort data manipulation and report functions can be applied to the records created by the query operation.

- Multiple Output. Output data from a single sort pass can be directed to multiple SORTOUT data sets (OUTFIL). Each data set can be uniquely grouped, selected, and edited.

- SortWriter. Creates full-featured reports, without the need for COBOL.

- Data Editing. Permits easy selection and formatting of records:

  - INCLUDE/OMIT selects input records based on comparisons between fields or between fields and constants. Supports cultural environment locales, bit-level processing and complex logical conditions.

  - INREC/OUTREC reformats and edits input/output records: Adds, removes, and reorders fields; inserts spaces, characters, binary zeros, hex digits; positions fields with column alignment; converts numeric data to printable format or other common data formats; edits numeric data with supplied or user-defined editing masks; supports editing and arithmetic calculations of Y2K date formats; inserts sequence numbers; supports repetition factors up to 4095; splits records into multiple records; converts variable length input records to fixed length output records; changes specified strings based on a lookup table; allows arithmetic calculations among fields within a record, among fields and constants, and among constants and constants.

  - SUM consolidates records with equal sort keys and optionally totals values in specified fields. Optionally writes eliminated records to a separate data set.

- SKIPREC/STOPAFT processes or skips a specified number of records. Useful for testing.

INPUT/OUTPUT

- BSAM, VSAM, and BDAM formats and devices.
- Hiperbatch, BatchPipes /MVS.
- Variable length record validity testing, and processing of variable length records shorter than SORT/MERGE control fields or INCLUDE/OMIT compare fields.
- Automatic secondary allocation, space release, system determined block size support on SORTOUT.

INTERMEDIATE FILES

- Disk or tape
- Supports up to 255intermediate work files, either in JCL or through dynamic allocation.
- Dynamic allocation supports SMS STORCLASS.
- Automatic space release, secondary allocation.

EXIT SUPPORT

- Supports many user exits, including E15 and E35 exits written in C, COBOL, Assembler, or REXX.
- Supports FASTSRT parm of VSCOBOL II computer.

UTILITY PROGRAMS

- High performance replacement for IEGENER (BetterGener).
- Variable length record analysis (HISTOGRM).
- Default options report (SYNCLIST).

INVOCATION

- Invoked through JCL or through programs written in COBOL, PL/1, Assembler, or FORTRAN.
- Supports 24-bit and 31-bit parameter lists.
- $ORTPARM facility can override parameters and control statements passed by invoking programs.
- Supports IDCAMS BLDINDEX interface.

COMPATIBILITY

- Executes on all zSeries 900 and 390 Architecture computers with z/OS, OS/390, or MVS/ESA (plus equivalent Amdahl and Hitachi computer systems).

- Compatible with existing applications written for IBM's DFSORT of for prior SyncSort releases. Requires no changes to current JCL, control statements, parameter lists, exits, and all installed system software, including DB2 and IMS utility sorts.

- Exploits current hardware and operating system features, including data space, hiperspace, Parallel Sysplex architecture, and the additional central storage made available by 64-bit z/Architecture (zSeries 900) processors.

INSTALLATION

- Provides an easy-to-use interactive installation program (SYNCINIT). Can be installed with or without SMP/E. Non-interactive installation also available.

- Can be installed in a non-reentrant or reentrant configuration.

"CURRENT IN-PRODUCTION"

PRODUCT PRICE SCHEDULE
MFX for z/OS

132-32
TERM SOFTWARE
LICENSE

INCLUDES GSA NEGOTIAGED DISCOUNT

Base MSUs 3	per MSU 4-45	per MSU 46-175	per MSU 176-315	per MSU 316-575	per MSU > 575
$387.20	$1.21/month	$2.42/month	$3.63/month	$1.21/month	$1.21/month

NOTES:

(1) A separate SyncSort for z/OS License is required for each CPU.
(2) License fees include maintenance and technical support.
(3) License fees are payable in U.S. funds within thirty (30) days from License effective date.

DESCRIPTION OF PRODUCT

SyncSort for DMExpress

DMExpress is the high-performance data transformation product for UNIX, Linux and Windows environments. It extracts data at very high speed from any source database or flat file, applies any kind of record level transformation and/or field level transformation, and then loads the data into any target database flat file. DMExpress can design, schedule, and control all data transformations from a simple graphical interface on a Windows desktop. It will improve performance on tasks ranging from simple database loads to building large-scale corporate data warehouses.

HIGH PERFORMANCE

DMEpress integrates patented algorithms, state-of-the-art parallel processing technology, and dynamic optimization to significantly reduce elapsed processing time. It also maximizes performance by exploiting the architecture and utilizing the best I/O method available.

EASE OF USE

The advanced, easy-to-use Graphical User Interface (GUI) of DMExpress speeds the development, deployment and use of tasks and jobs. The overall design of the GUI reduces user keystrokes, eliminates data duplication, and allows for the reuse of objects. Solutions can be built using simple point-and –click commands. The GUI also allows tasks to be built with drag-and-drop techniques. The flow of these tasks is easily monitored during processing.

DATA TRANSFORMATION

The data transformation model is based on an easy-to-define paradigm. Data transformations run directly form the desktop, on any UNIX or Windows server. They can be scheduled for later execution, embedded in batch scripts, or invoked from third-party applications.

The data transformation capabilities include:

Source Level Operations
- Convert database tables to flat files and vice-versa.
- Records can be fixed or variable

Record Level Operations
- Aggregate, join, fort, merge, or just copy records to the appropriate target(s).
- Filter, reformat, or otherwise transform records before output.

Field Level Operations
- Includes data type and format conversions, arithmetic operations, string operations, date-time operations, pattern matching, and conditional operations.

HETEROGENEOUS SOURCES AND TARGETS

- RDBMS
- Flat Files
- Structured Files (e.g. indexed files and spread sheets)

– Pipes
– Data in Memory

METADATA MANGEMENT

DMExpress features a flexible, simple and reuseable metadata model. Metadata, including record layouts, business rules, transformation definitions, run history, and data statistics, are maintained either within a specific task or in a central repository.

File and Data Formats
DMExpress processes the following formats:

Source and Targets
– Sequential files
– Indexed files
– Records passed from/to standard input/output
– Records passed from/to an invoking program

Records Formats
– Fixed length
– Delimited text
– Variable length
– Fortran unformatted
– Micro Focus variable
– Micro Focus line sequential

Data Type
– Character
– Edited numeric
– Date/Time
– Packed decimal
– Signed integer
– Unsigned integer
– Floating point
– Bit
– Unsigned decimal
– Leading separate sign decimal
– Trailing separate sign decimal
– Leading embedded sign decimal (Micro Focus format and alternative format)
– Trailing embedded sign decimal (Micro Focus format and alternative format)

Collating Sequences
– Standard (ASCII, EBCDIC, folded ASCII, folded EBCDIC, Multinational)
– Locale defined
– User defined (one-on-one, one-for-two, two-for-one, and two-for-two replacements)

JOBS CREATION, SCHEDULING AND SUBMISSIONS

Powerful Client-Server Model
- Provides flexibility to build applications on a Workstation and deploy on Production server

Use Task and Job Editor
- Visually represents Task flow
- Execution of Jobs
- – Create abd submit batch scripts
- – Scheduled executions of task
- – Executions from applications
- Interconnects Tasks
- Intergrates with third party applications

Job Status Manager
- Monitor job and task status

SYSTEM REQUIREMENTS

Windows Platform
Supports single and multi-CPU platforms capable of running supported operating systems

Operating Systems Supported
- Windows 98, Windows Me, Windows 2000 or higher
- Disk Space Requirements: 30 MB

UNIX Platforms
Operating Systems Supported
- UNIX OS, SunOS 5.7, AIX 4.3.3, HP-UX11, HP-UX11i (Itanium), OSF Tru64 5.1, Linux OS, Red Hat Linux 7.3, Linux (Itanium)
- Minimun Memory (RAM) Requirements: 25 MB
- Disk Space Requirements: 50 to 130 MB (varies by UNIX platform)

RDBMS SUPPORT

Sources/targets supported on Windows and UNIX: Oracle, DB2, Sybase, Microsoft SQL Server, Microsoft Access, Mircosoft Excel, ODBC, and Red Brick

MODEL CONFIGURATIONS

DMEpress is available in two model configurations, each with optional components:

DMEpress Workstation-DMEpress Workstation is a single-user Windows PC based client (GUI) and engine, with the complete ability to develop and execute DMExpress applications and scripts. DMExpress Workstation cannot run on machines with more than 2 physical CPUs and/or on a Server class operating system. Scripts developed using DMEpxress Workstation can also be run on DMEpress production platforms. It has the same optional components as DMEpress.

DMExpress-DMExpress is the client (GUI) and engine, with the complete abiltiy to develop and execute DMExpress applications and scripts able to run on all supported operating system platforms.

DMExpress and DMExpress Workstation Optional Components

- RDBMS Source Component
- RDBMS Target Component
- Advanced Data Management Component

INVOCATIONS

DMExpress provides serveral choices for invocation:

- Run the task immediately from the Task Editor graphical interface.
- Store the task locally and run it from a later DMExpress session.
- Store the task and run it later from the command prompt on a server.
- Store the task on a remote UNIX server and run it from the command prompt on the UNIX server.
- Write a program to run a task.
- Let DMExpress generate a program to run a task.

INSTALLATION

DMExpress is distributed and installed from Syncsort's Web site via a download executable or on a CD.

All Hardware Manufacturers
Server Tier levels are provided on pages 66

ServerTier Level	132-33 PERPETUAL SOFTWARE LICENSE
Tier 1	$3,878.00 per core
Tier 2	$5,816.00 per core
Tier 3	$7,755.00 per core
SDK	$18,750.00 per site

(Above prices are also applicable to all prior Releases currently being supported)

DMExpress Sort: DMExpress Sort is the fastest, most efficient sort technology in the market. DMExpress Sort (previously referred to as DMExpress Base or DMExpress Server) helps support key business applications by providing high performance sort along with basic join and aggregation functions.

"CURRENT IN-PRODUCTION"
Product Price Schedules
DMExpress App Mod

All Hardware Manufacturers
Server Tier levels are provided on pages 66

ServerTier Level	132-33 PERPETUAL SOFTWARE LICENSE
Tier 1	$ 4,700.25 per core
Tier 2	$ 7,050.00 per core
Tier 3	$9,399.75 per core
SDK	$20,625.00 per site

(Above prices are also applicable to all prior Releases currently being supported)

DMExpress Application Modernization (DMExpress App Mod): DMExpress App Mod is used for projects that are migrating or re-hosting mainframe applications to open systems (Unix, Windows) with re-hosting environments from vendors such as Clerity and Micro Focus. This offering includes vendor integration, mainframe source, and JCL conversion. It also includes high performance compression technology and function to accommodate data transformations

"CURRENT IN-PRODUCTION"
Product Price Schedules
DMExpress (Full Edition)

All Hardware Manufacturers
Server Tier levels are provided on pages 66

ServerTier Level	132-33 PERPETUAL SOFTWARE LICENSE
Tier 1	$ 7,755.00 per core
Tier 2	$11,632.00 per core
Tier 3	$15,510.00 per core
SDK	$20,625.00 per site

(Above prices are also applicable to all prior Releases currently being supported)

DMExpress Full Edition (DMExpress) : DMExpress is the fastest, most efficient and cost-effective data integration software in the industry. This full edition of the product includes the full set of DMExpress features and functions, including high performance joins, aggregations, and compression capabilities. Additionally, it provides transformation functions, complete database connectivity and advanced metadata interchange.

NOTES:

(1) Pricing above is per core
(2) DMExpress Sort, DMExpress App Mod and DMExpress server licenses entitle Customer to unlimited workstation Licenses at no cost.
(3) License Fees are payable within 30 days from the License effective date.
(4) Processor Tier Upgrade Fee is equal to the difference in the then current Tier fees.
(5) Maintenance will be calculated at 20% of the Perpetual License Fee for 24X7/365 maintenance and support.
(6) The reinstatement of lapsed maintenance will require the payment of a reinstatement fee, The fee will be a prorated 30% of the then current list Perpetual License Fee of all of the licensed Product components for each lapsed year. Upon reinstatement, the 20% annual maintenance fee.

Server Tiers for DMExpress Sort, DMExpress App Mod, DMExpress Full Edition, SyncSort UNIX and SyncSort for Windows

Group	Vendor	Processor/Model

Tier 1	All	Intel x86, Intel Xeon, AMD Operton, Itanium (Windows, Linux)
	HP	BL: Below 800
	Sun	x86 based SPARC T3 Sunfire T1000, T2000, T5000, T6300 UltraSPARC T1, T2
Tier 2	HP	L2000, N2000 BL: 800 and higher RX: below 8000 RP: below 8000
	IBM	JS/PS Blades POWER5: All POWER6: 560 and lower POWER7: 750 and lower
	Sun	SPARC-based (not in High-range)
	Fujitsu	SPARC-based (not in High-range)
Tier 3	HP	RX: 8000 and higher RP: 8000 and higher Superdome
		POWER6: 570 and higher POWER7: 755 and higher System z (1 IFL)
	Sun	M8000 and higher E6900 and higher
	Fujitsu	PRIMEPOWER 1000 and higher

Today's enterprise data strategies have to manage more than growing data volumes. They must also adapt to integrate new and diverse data sources and types, adhere to security and governance mandates, and ensure the right tools and skills are in place to quickly deliver business value from the data.

Syncsort DMX-h is specifically designed to help you achieve your modern data strategy objectives with a single interface for accessing and integrating all your enterprise data sources -- batch and streaming -- across Hadoop, Spark, Linux, Unix or Windows -- on premise or in the cloud.

Harness the Power of Big Data with DMX-h!

Access, Integrate, Comply & Simplify

Syncsort DMX-h was designed from the ground up to make big data integration simple – combining a long history of innovation with significant contributions Syncsort has made to improve Apache Hadoop.

With DMX-h, you get:

- A single software environment for accessing and integrating all your enterprise data sources – batch and streaming – while managing, governing and securing the entire process.
- Software that evolves with the Hadoop ecosystem to keep you current without rewriting jobs, acquiring new skills, etc
- The best mainframe access and integration capabilities in the world
- An easy-to-use graphical interface with the flexibility to quickly extend the software for your unique needs
- Access to the industry's best support and services to ensure your success

Build Your Enterprise Data Hub with Best-in-Class Data Ingestion

Syncsort DMX-h makes it easy to collect raw data from every source across the enterprise and populate your data lake efficiently, reducing development time from weeks to days.

- Collect virtually any data from any source, including:
- JSON
- Kafka
- Mainframe
- MPP

- NoSQL
- RDBMS
- S3
- Move hundreds of tables – including whole database schemas – into your data hub at once, with the press of a button
- Access both batch & streaming from the same interface
- Access, re-format and load data directly into Avro & Parquet. No staging required
- Load more data into Hadoop in less time. Let DMX-h dynamically split the data and load it to HDFS in parallel

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PERPETUAL SOFTWARE LICENSE

Product	Price per Node
DMX-h ETL	$3,900.00

NOTES:

(1) Pricing above is per node

(2) DMX h-ETL licenses entitle Customer to unlimited workstation Licenses at no cost.

(3) License Fees are payable within 30 days from the License effective date.

(4) Maintenance will be calculated at 20% of the Perpetual License Fee for 24X7/365 maintenance and support.

(6) The reinstatement of lapsed maintenance will require the payment of a reinstatement fee, The fee will be a prorated 30% of the then current list Perpetual License Fee of all of the licensed Product components for each lapsed year. Upon reinstatement, the 20% annual maintenance fee.

IRONSTREAM

With Ironstream, you collect log data from SMF, RMF, Syslog and other z/OS sources, and forward that data in real time to the Splunk® Enterprise analytics platform. That gives you visibility into your z/OS environment as well as your distributed and open-systems environment. ***Total visibility***, in other word. This is done without the need for z/OS monitoring systems or for specialized, scarce, and costly mainframe expertise.
Comprehensive and powerful business intelligence reporting is at hand as users can easily search, analyze, and visualize the mainframe log data along with log data from distributed and open-source systems.

Ironstream also integrates with Splunk's Enterprise Security and IT Service Intelligence applications. This goes beyond IT operational analytics to give you a firmer grasp of potential security threats in your z/OS environment. It ensures that your critical business services are being delivered on time.

- **Less Complexity,** making it easy to collect mainframe data and correlate it with data from other platforms, providing a total view of the IT infrastructure for analysis. And you don't need mainframe access or mainframe expertise.
- **Crisp, Clear Security Information,** making it much easier to identify unauthorized mainframe access and correlate mainframe security threats with threats from distributed systems in Splunk Enterprise Security.
- **Healthier IT Operations** through real-time alerts to identify problems in all key environments like CICS, DB2, IMS, MQ, etc., and by monitoring transaction system performance, with views of latency, transactions per sec, exceptions and more.
- **Assurance of High-Quality Delivery of Business Services** by providing and correlating Key Performance Indicators (KPIs) for critical z/OS components like DB2 and CICS to Splunk IT Service Intelligence.
- **Higher Operational Efficiency** by augmenting silo monitors with new technologies that better correlate events across systems

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PERPETUAL SOFTWARE LICENSE

PRODUCT	Data Volume	GSA Price per

		Data Volume
Syncsort Ironstream	**Up to 10GB**	$15,000.00
SPECIAL ITEM 132-33	**Up to 20 GB**	$30,000.00
	Up to 100 GB	$56,250.00
	Up to 200 GB	$97,500.00
	Up to 500 GB	$182,812.50
	Up to 1 TB	$262,500.00
	LPAR	
Syncsort Ironstream	**Per LPAR after 3 LPARs**	$15,000.00

Notes:

1. Price per Data Volume is for Perpetual term.
2. Data Volume(GB) Tier is up to daily volume tier amount selected
3. Data Volume is the daily amount of z/OS data indexed by Splunk Enterprise
4. Above 1 TB requires customized quote
5. No charge for first three (3) LPARs
6. Price includes both Data Volume and LPAR components
7. Maintenance is calculated at 20% of the GSA discount price