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PROSPECT REPORT & LABEL SERVICE
by ISO Technical Support

The ISO Technical Staff, in conjunction with the Strategic Information Systems Department, is providing information in the form of either reports or labels to assist the Independent Sales Organization in marketing. The information is derived from the National Business List yellow pages data base, which includes all professional firms (lawyers, doctors, etc.) with two or more partners, all manufacturing locations above 20 employees and other industries selected on assets. This data contains the names, addresses, telephone numbers, sales figures, and Dun & Bradstreet numbers of the establishments within a designated territory. Additional information such as contact names may be included upon request.

The following options are available:

Prospect Report
Prospect reports provide information on the top 1000 companies based on your selection of the following criteria:

Prospect reports may be narrowed down to establishments meeting one or more of the following specifications:
- Industry Vertical Market (SIC)
- Geography (State, County, ZIP)

And may be sorted by:
- ZIP code
- Business name
- State and/or City
- SIC code

Mailing Support
This option provides up to 100,000 labels, gummed or cheshire, for a mailing to establishments included in any of the above reports.

Additional market segmentation and sizing services will be available at a later date. For your convenience, an order form for the currently-available services has been included at the back of this issue.

A notice regarding the availability of this service has been mailed to all systems houses currently under contract with Wang. A Non-Disclosure Agreement, enclosed with the mailing, must be completed and returned with your first request. If you have questions, contact Anne Hills at 617-459-5000 x.5598 or Lori-Ann Russell at 617-459-5000 x.2049.

ISO SOFTWARE PROFILES NEEDED by ISO Technical Support

To insure that the Independent Sales Organization is accurately represented in Wang's software distribution data base, each systems house and software vendor is asked to send in a software profile consisting of the following information:

ISO SOFTWARE PROFILE FORMAT

. What Wang CPU type(s) and model number(s) do you have?

. What is the serial number of each of your CPUs?

. What diskette media can you use (size & recording density)?

. List the names and version numbers of all Wang software currently installed on these systems.

. If you have a Wang 5577 or LPS-12 printer, please list the fonts and version numbers currently installed.

. Specify your Wang customer number, company name, address, telephone number, and the name of an individual to whom software availability notices should be sent.

Please provide data separately for each CPU. Sending the above information to Wang Software Distribution and Control as soon as possible will enable you to be notified by mail of updated software versions as they become available. ISO software profiles should be mailed to:

Wang Software Distribution and Control
Mail Stop 14A3D
Wang Laboratories, Inc.
One Industrial Avenue
Lowell, MA 01851

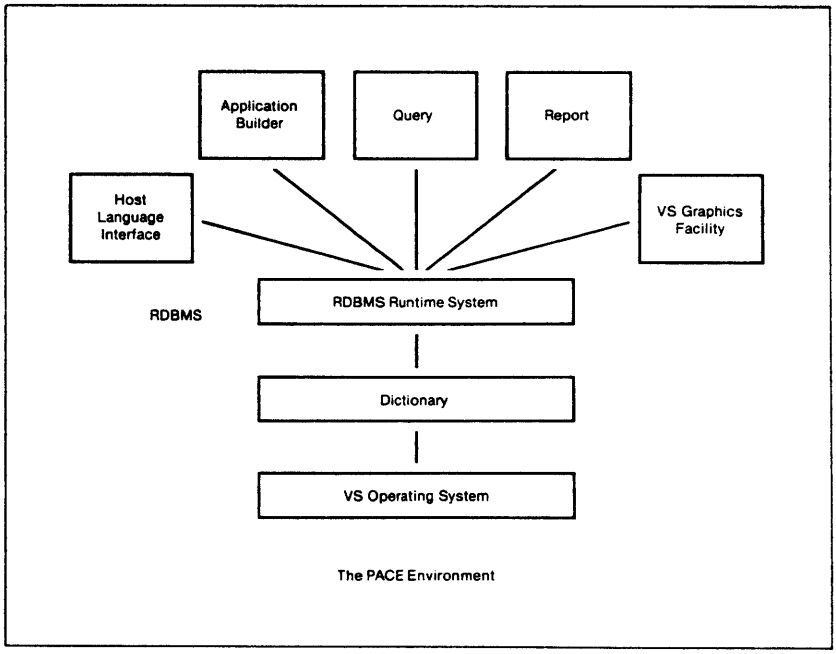
VS PACE ANNOUNCED
by VS Product Marketing

DESCRIPTION

Wang Laboratories is pleased to announce the Professional Application Creation Environment (PACE) for the VS product line. PACE consists of a relational data base management system (RDBMS) and a set of powerful productivity tools, which use the latest fourth-generation technology, along with the proven VS menu-oriented user interface. PACE is composed of the following products:

- RDBMS - a fully relational data base management system, including an Integrated Data Dictionary, a Host Language Interface, and a Relational Run-time System.
- Application Builder - a new fourth-generation data entry and data base update application generator.
- Query - an updated version of the VS EZQUERY utility, an existing interactive non-procedural relational query facility. Query allows interactive queries against PACE data bases.
- Report - Report displays information by executing queries against the RDBMS data base. No syntax is required , as Report automatically generates a default report which can be modified directly on the screen.
- VS Graphics Facility - an interactive business graphics facility that generates graphs from data base files.

The PACE environment is shown in the figure below:



The PACE Environment

(continued)

VS PACE ANNOUNCED (continued)

In addition to the products already mentioned, PACE contains the PACE Manager, a driver for the PACE environment. Through this menu-driven manager, users can access all applications and files within the PACE environment. Each of the PACE products is described in more detail below.

RELATIONAL DATA BASE MANAGEMENT SYSTEM

All PACE products rely on RDBMS to access data. A relational data base management system uses value-based rather than pointer-based technology, allowing the user to tell the system what data is wanted, instead of how to navigate the data structures to obtain the data. All data within RDBMS is represented in the form of two-dimensional tables, with rows corresponding to data records and columns corresponding to data fields. The user manipulates this data by operating on related groups of rows or columns, with RDBMS responsible for choosing an efficient path to access or modify the requested data.

RDBMS consists of an Integrated Data Dictionary, a Host Language Interface, and a relational Run-time System.

Integrated Data Dictionary

All components of the PACE environment share information stored in a central data dictionary, which ties them together into a completely integrated environment. The primary advantage of the RDBMS Dictionary is the interactive, menu-driven data definition utility which eliminates any need for a batch-oriented Data Definition Language (DDL) syntax. Another advantage is the definition of relationships between records, which are used by all PACE products, thereby providing automated inter-record integrity maintenance.

Host Language Interface

RDBMS provides a Host Language Interface (HLI) to access the data base from a programming language. Initially, VS COBOL will be the only programming language with an interface to RDBMS. Programs can access the data base through a SQL-compatible command language, which consists of powerful, easy-to-use syntax to perform the basic relational operations. (SQL is a Structured Query Language developed by IBM for use by its relational data base management systems. RDBMS does not support SQL's data definition language, as all data definitions are interactively provided through the Integrated Data Dictionary.)

(continued)

VS PACE ANNOUNCED (continued)

The Host Language Interface provides increased functionality (high-level approach) for programmers to write complex data base applications. The programmer does not need to worry about data base low-level details, since data access is handled by RDBMS. The integrity and security of data is defined by the RDBMS Dictionary and enforced by the Run-time System.

RDBMS Run-time System

The RDBMS Run-time System provides access to the data base using the relational model for executing all RDBMS and PACE applications. RDBMS Run-time System supports the following functions:

- Basic relational operations such as select (choosing records of a file), project (selecting fields) and join (combining tables whose rows represent records and whose columns represent fields)
- Extended relational operations such as outer joins, integrity constraints (field and inter-record validation), and automated record relationship maintenance
- Query optimization, which automatically determines the most efficient data access path
- Complete integration with DMS, including ability to process multiple-record-type files
- Integrated manipulation of screens defined by Application Builder

The above components constitute the "base" RDBMS product. PACE will be available as an entire package or as a starter package consisting of RDBMS and the PACE Manager, which allows the programmer to access the data base through the Host Language Interface. With the starter package, the other PACE products are available individually. All data definitions and relationships will be provided through the Integrated Data Dictionary. Note that all other PACE products require RDBMS.

APPLICATION BUILDER

The fundamental goal of Application Builder is to dramatically reduce the amount of time and talent required to design sophisticated interactive applications. With the attainment of this goal, Application Builder greatly reduces the cost of VS application development. The key aspect is the simplicity of Application Builder execution by filling in forms and manipulating displayed objects, without requiring the use of syntax common to other data base systems.

(continued)

VS PACE ANNOUNCED (continued)

Application Builder enables users to:

- Select, list, add, delete, and modify groups of related records
- Process more than one record type per transaction
- Generate processing logic based on user specifications entered by filling in forms
- Use customized screens or default-generated screens for data base operations
- Create customized screens by manipulating the appearance of the default screens
- Perform multi-screen transactions, without committing them to the data base until user specifies
- Allow screens larger than the workstation screen, and define commonly-used parts of screen only once

To build an application, the following steps are required:

1. Use the RDBMS Dictionary to define data items, records, inter-record relationships, and integrity constraints.
2. Optionally, use the RDBMS Dictionary to define one or more application-specific views of the data base.
3. Use Application Builder to create the application by identifying the defined view(s) to be operated upon.

A complete data base application containing all necessary screens, PF-key functions and processing logic is then generated, with information about data elements and relationships derived from the Dictionary. Screens can be easily customized to meet specific needs.

Application Builder applications may be customized for exceptional situations with a traditional programming language (i.e., COBOL) to produce more powerful data base applications. As an alternative, the entire application can be written in COBOL using the Host Language Interface (HLI) to access the data base. The RDBMS Run-time System uses the defined integrity constraints in the Dictionary to validate the data base commands for HLI (or Application Builder) applications. The Application Builder's screen management facilities can be used to define screens for the host language programs.

(continued)

VS PACE ANNOUNCED (continued)

QUERY

PACE Query is an updated version of EZQUERY, a non-procedural interactive query product. A conversion package will be available to convert existing EZQUERY Record Description files and stored queries (and CONTROL files) for use with the RDBMS data base. Query will use the RDBMS Dictionary facility and will access RDBMS data bases with a complete set of relational operations against the tables. The generated answer tables can be converted to documents, form letters, or input to Report (via stored queries). Because it is completely menu and screen driven, Query will require no knowledge of syntax. Data base updates will be permitted only by authorized users.

REPORT

Report has three basic phases of operation: report definition, report customization, and report execution. During report definition, the user is guided through a simple sequence of screens to select the content and format of the report. Based on these responses, Report displays a report representation which, without further customization, can be executed at the touch of a key.

The report definition phase is especially useful to users more interested in quick response than in the design of a precise output format.

During the customization phase, the user is given unlimited ability to change and adjust the report format. Using a visually-oriented format editor, the user can add, change, delete, or move data fields, totals, headers, labels, text, etc. Visual representation of the resulting report is maintained throughout this process.

When customization is complete, Report generates an efficient program to produce the report described by the report format. The report format and the generated report program are stored in the VS data dictionary for subsequent and repetitive usage, along with the record and file descriptions and the stored queries created by EZQUERY. During the execution phase, these definitions are used to generate the actual reports.

VS GRAPHICS FACILITY

VS Graphics Facility is a business graphics product that permits graphs to be generated from information in RDBMS data bases. Bar, line, pie, surface (area), scatter and word charts are available for presenting information through an interactive menu-driven facility. Ease of use is ensured by extensive use of defaults and menu interfaces.

(continued)

VS PACE ANNOUNCED (continued)

PACE Compatibility with VS Data Management

PACE is completely compatible with the VS Data Management System (DMS). Since RDBMS uses standard VS DMS (Data Management System) files, no data conversion is required; the same files can be accessed by RDBMS or DMS programs.

Files within RDBMS are DMS/TX files, which are enhanced DMS files with recovery blocks, completely consistent with DMS files. To allocate blocks, one needs to run the DMSTX Utility, which copies the DMS files to DMS/TX format, adding two blocks to the beginning of each file. DMS/TX is expected to be a bundled feature VS Operating System Release 6.20, and provides the following functionality:

Transaction Recovery, which maintains data base integrity by allowing rollback and roll forward recovery of transactions.

Enhanced File Sharing, which provides concurrent on-line data base access with good performance.

MARKETING STRATEGY

The data processing marketplace has a critical need for finding solutions to the problem of managing information at many levels. Wang is addressing this need with PACE. PACE not only satisfies the demand for an application development environment and a relational data base, but does so with a toolkit of productivity tools which exceed the competition in terms of ease of use and flexibility. PACE can dramatically reduce the applications backlog by:

- Increasing programmer productivity
- Increasing end-user access to information
- Minimizing the impact of data base changes on existing applications

PACE continues Wang's ease-of-use philosophy by enabling data base applications development, inquiry, and reporting without the use of programming syntax. Syntax capabilities and interfaces to host languages are provided, however, for the programming of complex applications. The dramatic increase in productivity enabled with PACE can help to reduce the applications backlog and decrease development and maintenance costs for applications, while providing users with key information within a meaningful timeframe. PACE also provides a growth path for moving toward the goal of Distributed Information Processing and the integration of text, image, graphics, voice and traditional structured data.

(continued)

VS PACE ANNOUNCED (continued)

The Wang PACE environment is highlighted by the following key features:

Relational Model
In the PACE extended relational data base management system, all information is presented in the form of tables, with each table corresponding to a record type. Within a table, data is represented in the form of rows (records) and columns (fields in a record). Movement through the data base is based on the "value" of a particular cell rather than on navigation along predefined chains. All of this makes the relational model ideal in dynamic environments where information access needs cannot be predetermined.

Visual Orientation
All PACE products are visually oriented for the rapid presentation of information to the user at the workstation. This visual orientation helps separate Wang products from the competition.

Presentation Options
Information gathered from the data base can be presented in the form of reports, graphs, tables, or documents.

Ease of Use
Ease of use is achieved with menu-driven products and a PF-key orientation that eliminates the need to learn new syntax or memorize special keywords. In many cases, the user is presented with a list of options from which the desired object or function can be selected.

PACE not only addresses the needs of the new prospect who understands the value of relational implementations, but migrates Wang's existing install base into this new technology. RDBMS enhances the applications that are currently running on the VS without divorcing customers from their Data Management System (DMS) information pool.

A Comparison of RDBMS and TOTAL

Wang's data base management strategy is to provide both traditional and relational DBMS tools to meet the diverse needs of the marketplace. PACE's value-based relational data base management system (RDBMS), satisfies requirements for user-friendliness, whereas Wang VS TOTAL meets traditional DBMS requirements with its pointer-based technology. Differences between these two approaches are shown on the following page.

(continued)

VS PACE ANNOUNCED (continued)

PACE RDBMS
. Based on relational model
. Easy to use
. Integrated with leading-edge fourth-generation application development and information management productivity tools
. Non-procedural front-ends for queries, reports, and updates
. Compatible with VS utilities; no data conversion of DMS files necessary

VS TOTAL
. Based on traditional, but proven, network model
. More complex, requires programmer environment
. Widely used, familiar to many DP organizations
. Enhanced version of IBM's implementation of TOTAL
. Not compatible with DMS files and VS utilities

Relational data base management systems are the wave of the future, and RDBMS will allow Wang to fully compete in the marketplace. VS TOTAL, a product directed to the programming professional, will provide a powerful data base solution for users familiar with its mature technology.

The first release of PACE will be restricted by having:
. Only COBOL as a host language interface
. No support for consecutive files or limited view security
. No dynamic projects or joins, except for Query.
. Except for Query, only outer joins (table combination by linking through values in compatible columns, or fields)

ORDERING INFORMATION

The PACE product offering is available via two licensing arrangements -- the PACE Package and the PACE Starter Product. The PACE Starter Product includes the Relational Data Base Management System and the PACE Manager. The PACE Package includes the PACE Starter Product as well as the related productivity tools (Application Builder, Query, Report, and the VS Graphics Facility). First customer shipment of PACE is expected in June 1984. PACE products will operate on the VS 25, 45, 85, 90, and 100.

Three support options are offered with the PACE package:

1. PACE Standard Software Support provides unlimited telephone support via a dedicated 800-number at Wang corporate headquarters, on-site support for problem determination as necessary, and automatic customer software and documentation updates. The Standard Software Support contract is effective after the 90-day warranty period has terminated.

(continued)

VS PACE ANNOUNCED (continued)

2. PACE Central Site Support is available for secondary users who receive on-site support from a non-Wang central site. (The central site purchases PACE Standard Software Support at full price.) The Central Site Support option provides unlimited Wang telephone support for the secondary users. On-site support for problem determination, and software and documentation updates, are provided by the non-Wang central site.

3. The third PACE support option is Billable Software Support. This support option provides on-site support at the standard C.E. hourly charge, software and documentation updates at a charge of $350 per update, and no telephone support.

Prices for the PACE software and support offerings are as follows:

Model Number	Description	Initial License Fee	Monthly Std. Softw. Support Fee	Monthly Central Site Support Fee
196-0006-x*	PACE Package**	$ 34,000	$ 302	$ 121
195-2733-x*	PACE Starter Product	10,000	84	34
	Starter Options:			
195-2734-x*	Application Builder	15,000	125	50
195-2736-x*	PACE Query	4,000	34	14
195-2737-x*	PACE Report	4,000	34	14
VS GRAPHICS-x*	VS Graphics Facility (Requires 6300 workstation to view graph)	3,000	25	10

* x indicates either media type (3 or 5) or support type (STD or CSS) as follows:
3 - single-sided single-density (SSSD) diskettes for VS 85, 90, 100
5 - dual sided double-density (DSDD) diskettes for VS 25, 45, 85, 90, 100
STD - PACE Standard Software Support
CSS - PACE Central Site Support
For example, to order the PACE Package on DSDD diskettes with Standard Software Support, specify model numbers 196-0006-5 and 196-0006-STD.

** The PACE Package contains PACE Starter Product, Application Builder, PACE Query, PACE Report, and the VS Graphics Facility

VS COMPILER PRICE CHANGES AND NEW SUPPORT OFFERINGS

by Marketing Services Operations

In an effort to keep the cost of its hardware products competitive and to broaden its spectrum of software support, Wang Laboratories is announcing:

- Revised license prices for VS compilers
- New software support offerings for VS compilers

REVISED LICENSE PRICES FOR VS COMPILERS

Effective September 1, 1983, all VS compilers are unbundled from the price of hardware. The only exceptions are the following VS 25, 45, and 85 packaged systems which include a compiler in the package price:

VS25B, VS25D
VS45E, VS45F, VS45G
VS85E, VS85F, VS85G

The Assembler will be bundled with the VS operating system. Any additional compilers for the above systems are chargeable. For all VS systems other than the packages listed above, and for any additional compilers with the above packages, the Initial License Fee for use of VS compilers has been increased as shown below:

VS Compiler	Initial License Fee From	To
COBOL	$3,000	$7,000
RPGII	3,000	6,000
BASIC	3,000	6,000
FORTRAN 66	3,000	4,500
PL/I	3,000	6,000

ISOs purchasing or renting a VS for demonstration and development (not resale), with Wang approval, will receive the standard development discount on compilers for that machine. An ISO's normal hardware discount will be applied to the initial license fee for compilers on any VS systems purchased for resale.

NEW SOFTWARE SUPPORT OFFERINGS FOR VS COMPILERS

The current VS compiler Monthly License Fee will be eliminated effective December 31, 1983, and will be replaced by one of three new software support offerings. These new support offerings are effective either:

1) January 1, 1984, for all VS compilers licensed before September 1, 1983 or
2) After the 90-day warranty period has terminated, for VS compilers licensed on or after September 1, 1983.

These offerings apply to both unbundled compilers and compilers included with the VS 25, 45, and 85 packaged systems listed above.

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VS COMPILER PRICE CHANGES AND NEW SUPPORT OFFERINGS (continued)

The three new software support options are as follows:

1. Wang Standard Software Support:
This support contract is a part of the Sales Agreement between Wang and the end-user. Wang Standard Software Support is charged at approximately 10% of the then-current Initial License Fee for each compiler. Monthly charges for this type of support are shown on page 94. Wang Standard Software Support includes the following:

   . Unlimited telephone support for VS compiler product problem resolution via a dedicated 800-number at Wang corporate headquarters.

   . Automatic software and documentation updates

   . On-site support, if required, by Customer Engineering Software Specialists at no additional charge for those problems not resolved through the centralized telephone support center.

2. Wang Central Site Support:
Wang Central Site Support is available for those customers who wish to provide their own on-site support to secondary users. This type of support cannot be purchased and then resold; it is intended for either customers or ISOs servicing multiple sites within their own company. Under this support agreement, the central site will purchase the Wang Standard Software Support offering at full cost, and is thereby entitled to all support offerings available under the Wang Standard Software Support contract.

   Each secondary location will be charged approximately 40% of the Wang Standard Software Support fee per compiler. For this fee, all secondary users receive:

   . Unlimited use of the dedicated 800-number for product problem resolution for VS compilers.

   . Software updates and documentation provided to the secondary sites by the central site.

   . For problems not resolved by the Wang corporate telephone support center, on-site support is provided only to the central site by Customer Engineering Software Specialists.

(continued)

VS COMPILER PRICE CHANGES AND NEW SUPPORT OFFERINGS (continued)

3. Billable Software Support:
   For those customers not covered under either Wang Standard Software Support or Wang Central Site Support, Billable Software Support is available. Any on-site support will be provided by Customer Engineering Software Specialists at the then-current Customer Engineering hourly rate (currently $100/hour) charged at a two-hour minimum. All software and documentation updates will be available at the rate of $350 per update. No telephone support will be provided.

Monthly software support fees for VS compilers, effective January 1, 1984, are shown in the following table. No discounts are allowed on monthly software support fees.

WANG VS COMPILER MONTHLY SOFTWARE SUPPORT FEES

VS Compiler	Model Number	Initial License Fee	Monthly Support Fee* STD	CSS
COBOL	195-2105-x**	$7,000	$59	$24
RPGII	195-2106-x	6,000	50	20
BASIC	195-2104-x	6,000	50	20
FORTRAN 66	195-2122-x	4,500	59	24
PL/I	195-2086-x	6,000	50	20

* STD = Standard Software Support
CSS = Central Site Support (Secondary Location)

** x = one of the following compiler model suffixes:
-3 = SSSD diskette media for VS 50,80,85,90,100
-5 = DSDD diskette media for VS 25,45,85,90,100
-7 = 9-Track magnetic tape (only available for PL/I compiler and RPG conversion package)
-STD = Standard Software Support agreement for specified compiler
-CSS = Central Site Support (Secondary Location) agreement for the specified compiler

To order the PL/I compiler on magnetic tape with Central Site Support, for example, specify model numbers 195-2086-7 and 195-2086-CSS.

VS RPGII COMPILER, VERSION 4.10.00

by VS R&D

DESCRIPTION

The Wang VS RPGII compiler validates and translates source programs written in the RPGII language and produces program files which may be executed on any Wang VS system. Version 4.10.00 of the VS RPGII compiler is now available as a general release. Among the enhancements included in RPGII Version 4.10.00 are the following:

1. Support for the VS DMS/TX Sharing and Recovery System

2. Support for a new RPGII special device interface, utilizing the VS standard calling sequence.

3. Support for receiving and passing Indicator Mask fields. This allows indicators to be mapped from a program or a procedure to an RPGII program through a character string of zeros and ones.

HARDWARE PRE-REQUISITES

Any VS system with a floppy unit and a disk drive.

SOFTWARE PRE-REQUISITES

The compiler may be run on any VS Operating System. Version 2.07.04 of the VS Procedure Interpreter is required to run the installation procedure.

ALERTS

1. RPGII programs that contain the new DMS/TX features must be executed under a version of the VS Operating System that supports DMS/TX (i.e. VS Operating System 6.10.00 or later).) RPGII programs with DMS/TX features may be compiled on any operating system.

ORDERING INFORMATION

Version 4.10.00 of RPGII is available through normal order processing channels. This version will also be shipped to existing RPGII customers who request the most recent version of the compiler. Note the compiler price changes and new support options described on pages 92-94. Available package numbers and their contents are:

Model #	Media
195-2106-3*	Two SSSD diskettes: Program diskette RPGII, part # 705-0409A
195-2106-5**	Two DSDD diskettes: Program diskette RPGII, part # 735-0034A

* For VS 50,80,85,90,100 systems
** For VS 25,45,85,90,100 systems

(continued)

VS RPGII COMPILER, VERSION 4.10.00 (continued)

Version 4.10.00 is the first VS RPGII compiler release to be shipped directly to and installed by Wang customers. Recipients of RPGII Version 4.10.00 will be placed on an RPGII distribution list and notified of future compiler releases. (ISOs who are existing RPGII users may be added to this distribution list by sending the software profile described on page 82 of this publication to Wang Software Distribution and Control at Mail Stop 14A3D. Requests to receive RPGII Version 4.10.00 may be enclosed with the software profile; specify also the version number of the RPGII compiler you are currently using.)

INSTALLATION INSTRUCTIONS

The RPGII installation procedure requires that version 2.07.04 of the Procedure Interpreter be on the system. To install the new version of the compiler, take the following steps:

1. Mount diskette volume RPGII.
2. RUN the procedure INSTALL in library RPGII on volume RPGII.
3. Follow the instructions.

Note: The input library is RPGII; output libraries are user-specifiable through the installation procedure. It is recommended that the compiler reside in the run-time library on the system volume, which is the default set by the procedure. Note, however, that input library RPGII on the volume RPGII can be restored to another volume on the system using BACKUP and run successfully from that volume. This allows old versions of the compiler and release notes to be renamed and archived.

Library RPGII contains the following files:

Module	Version	Protect. Class	Blocks	Description
RPGII	4.10.00	@	102	RPGII Compiler
INSTALL	(None)	Blank	8	Install. Procedure
RPGREL	(None)	Blank	27	Release Notes

The release notes are contained in a VS print file which may be displayed directly from the installation procedure. The release notes contain usage details on new features being introduced with Version 4.10.00. This information is also included in Reference Manual Addendum 800-1203RP-05.03.

PROBLEMS CORRECTED

1. A program check resulted when a constant subscripted array was the result field of a MOVEA instruction, and the element's displacement exceeded 4095.

(continued)

VS RPGII COMPILER, VERSION 4.10.00 (continued)

2. When an HO halt occurred due to an undefined record type on an input chain file, the error message reflected the primary file rather than the chain file. Also, an undefined record type was not being detected in a demand file.

3. Date field edit code Y was dropped as being illegal when used with a field defined as packed, length four.

4. A field defined as having four digits with four decimal positions and no sign required six positions on an Output Specification when editing was requested.

5. If an array name was used as the result field of a BITON or BITOF operation, no error message was issued. Also, a subscripted array element could not be used as Factor 2 in a BITON operation.

6. If a 7-character field name was entered as Factor 2 of a MOVEL operation, only a warning message was issued.

7. On a Line Counter Specification, if a line number and FL or a line number and OL were reversed, the compilation resulted in a program check.

8. Adding records to a shared, update, demand file locked all other users out, reducing system response time.

9. A program check occurred when the result field of an *ENTRY parameter list was allocated beyond the first 4K of the program's segment 2 space.

10. An addressing exception occurred when a sending parameter list requiring integer conversion was allocated beyond the first 4K of segment 2 space.

11. A tape file would not unload at "end of file" when unload (U) was specified in column 70 of the File Description Specification.

12. The program mask of the PCW was not being initialized by RPGII programs, which caused problems when an RPGII program was called from a BASIC program.

13. Using a restricted currency symbol in both the Header Specification and in an edit word on a Workstation Specification caused a run-time data exception.

14. When fields on Input Specifications required more than 8K of segment 2 space for allocation, field extraction failed.

(continued)

VS RPGII COMPILER, VERSION 4.10.00 (continued)

15. If an array was used in a data structure and the number of array elements was incorrectly entered as the total size of the array, a program check occurred during compilation.

16. Compression of output records was not working.

17. Warning message 381 was issued whenever a tape file was defined; it should only be issued when a compressed tape file is defined.

18. Error note 481 was issued if a FREE operation was used for DMS/TX processing and no files were opened in shared mode. DMS/TX does not require that files be shared.

19. An addressing exception was generated when the compiler attempted to access a pre-execution-time array in binary format.

KNOWN ANOMALIES

1. The compiler requires that a SPECIAL device parameter list contain the RPGII special word *CODE as a mechanism to pass a function code to the SPECIAL device subroutine. Failure to do this will only be flagged if the first File Description Specification is for a SPECIAL device; no check is made for subsequent SPECIAL files.

2. A close to an unopened workstation issued by a workstation program after a cancellation request is made by a SPECIAL device subroutine will result in a DMS error.

3. The ability to pass integer values from an RPGII program via a parameter list is not supported for a SPECIAL device parameter list. It will be in the next release of the compiler.

4. A SPECIAL device file name referenced in a parameter list will appear as in a cross reference listing under the name F%n.

REFERENCES

RPGII Reference Manual (800-1203RP-05)
RPGII Reference Manual Addendum (800-1203RP-05.02)
RPGII Reference Manual Addendum (800-1203RP-05.03)

2200 IDEAS2 RELEASE 2.1 PROBLEM FIXES
by 2200 Technical Support

Several problems with Release 2.1 of IDEAS2 have been addressed by the IDEAS2 development team. The following corrections should be made to the code in IDEAS2 Release 2.1 if you are having the problem indicated.

INTERACTIVE PROGRAMS

Problem: When compiling a program, if the existing program file is too small, IDEAS2 hangs in an infinite loop while trying to scratch and rename the old program file.
Circumvention: In module IDS2PP31, add a line 2060 that contains only the statement 'GO TO 2020'.

REPORTS

Problem: In a generated report program, the last sector is generated without a HEX(FF), leading to ERR D88 when the program is loaded.
Circumvention: In modules IDS2PP06 and IDS2PR19, the second statement on line 2030 is 'IF POS(F8$()=FE) < 244 THEN 2050'. Change the '244' in that statement (both modules) to '239'.

Problem: Report documentation for operations crashes with ERR P37 in IDS2PR36 line 1520.
Circumvention: In IDS2PR36, add line 1005 as follows:

```
1005 IF F6$(17) < "↑" THEN SELECT @PART"IDS2SUBM"
```

Problem: Report documentation prints "printer not available..." in place of the edit type.
Circumvention: In IDS2PR36, lines 1370-1430 and 1470 change all E$ references to F0$. For example, line 1370 in Release 2.1 reads:

```
1370 E$="set field(s)"
     :F9$="37"
     :GOTO 1660
```

It should read:

```
1370  F0$="set fields(s)"
      :F9$="37"
      :GOTO 1660
```

NOTE: The two references to E$() in line 1470 should not be changed.

Problem: In a report, the first line of the second page is printed at the bottom of the first page, and so on throughout the report.
Circumvention: In IDS2PRX4, the sixth statement is 'IF F6+B+1+A ... THEN A=MAX(0,F2-F6-B-1)'. The last expression, 'F2-F6-B-1', should be changed to 'F2-F6-B' (remove -1 at the end of the statement).

(continued)

2200 IDEAS2
RELEASE 2.1
PROBLEM FIXES
(continued)

EDITS

Problem: Documentation for Table lookup/replace sometimes prints in expanded print and hangs up.
Circumvention: In module IDS2PS35, line 1010, add the statement 'E$=" "' after the GOSUB 3320. In line 2110, add the statement 'E$=STR(F$(),J*Y-Y+1,Y)' after the GOSUB 3320.

BATCH PROGRAMS

Problem: If the "Copy a Batch Program" utility fails and you cancel back to the menu, in some cases a subsequent "Batch Program Revision" can cause sectors 25-33 of the disk index to be overwritten.
Circumvention: In IDS2PR23, insert the statement 'F6$(11)="N"' as the last (seventh) statement on line 1010. Insert the statement 'IF VAL(E6$)=31 THEN 1510' after the statement 'GOSUB 34...' on lines 1050, 1090, and 1105.

TC UTILITIES

Problem: The file dump utility crashes with ERR P34 in module IDS2PU20.
Circumvention: In module IDS2PU17, 'D1=VAL(E2$(413))' is the third statement on line 1270. Delete it from that line and add it as the fifth statement on line 1010.

Problem: When converting an IDEAS2 file to TC format, if the data file and control file are on different disks, field names entered under the record selection criteria are not recognized.
Circumvention: In IDS2PU05, change all references to variable J6 in lines 1890 and 1900 to C7. For example, the second statement in 1890 and the first in 1900 should be changed to read 'DATA LOAD DA T#C7 ...'.

Problem: Conversion to TC Format misses records.
Circumvention: In IDS2PU06, the fourth statement in line 1200, 'IF D2=0 THEN 1240' should be the second statement.

Problem: Sometimes completely blank records are moved to the TC file, which causes the TC record count to be larger than the IDEAS file record count, and causes problems moving records from the TC file back to the IDEAS file.
Circumvention: In IDS2PU06, the fifth statement is
'IF F$() < > " " THEN GOSUB 1040'. Change it to
'IF STR(F$(),,C4) < > " " THEN GOSUB 1040'.

(continued)

2200 IDEAS2
RELEASE 2.1
PROBLEM FIXES
(continued)

TC UTILITIES (continued)

Problem:
1. When bringing records back from a TC file to a type three file (duplicate keys allowed), only the first of a set of records with duplicate keys gets moved.
2. When moving records from a TC file to an IDEAS file if you choose the option to not overwrite some existing records, those records will be left protected in the IDEAS file.
3. When moving records back from a TC file, IDEAS does not check to see if the IDEAS file is full.

Circumvention: In IDS2PU08, line 1290 should be changed and 1291 and 1292 added so that the code looks like this:

```
1290 IF STR(E1$(C3),12,1)=HEX(03) THEN 1291
     : STR(D$(),,C4)=STR(F$(),,C4)
     : GOSUB 1300
     : F6$(14)="N"
     : GOSUB '41(C1$,D2$(),.5)
     : F=0
     : IF Q > 0 THEN GOSUB 1320
     : IF F=1 THEN 1291
     : STR(F$(),,C4)=STR(D$(),,C4)

1291 GOSUB '42(C1$,0)
     : IF Q = 0 THEN GOSUB 1292
     : RETURN

1292 J1=D4+1
     :F6$(14)='Y'
     :GOSUB '38(168," ")
     :KEYIN E6$
     :IF E6$ < > HEX (1F) THEN 1292
     :RETURN
```

Problem: Conversion from TC file to IDEAS2 file will crash with ERR P56 if there is more than one alternate key file.
Circumvention: The first statement in line 3000 ends with '... TO D1$STEP 56', and the second statement is 'D4=1+VAL(D1$,2)+7)/56'. Change the '56' in each statement to an '8'.

Problem: The IDEAS-to-TC sometimes skips keys of field type 5 or 6 which start with numerics and finds the first record with a key with alpha characters.
Circumvention: In IDS2PU05, remove the first statement in line 1400: 'IF C9$(1)=" "THEN C9$(1)=ALL(00)'.

WANG PC EXPANDED CHASSIS ANNOUNCED

by Wang PC Product Marketing

DESCRIPTION

Wang Laboratories is pleased to announce an expanded chassis for Wang Professional Computer systems. The new unit will accommodate up to eight option cards, an increase of three from the capacity of the original design. Both chassis will be available to customers, so that they may configure their systems to accommodate known and anticipated hardware requirements. The addition of three more expansion slots will allow customers to take advantage of more sophisticated Wang PC system configurations, including storage, communications, image, and network options.

The new chassis and enclosure is the same color, size and shape as the original design, except for an additional three inches of width and a three-pound increase in weight. The expanded chassis also incorporates a larger power supply to support the added expansion slots. Also, the power switch has been relocated from the back panel to the front panel. Because of the increased weight of the new chassis, use of the system unit clamp (PC-AC002) is not recommended.

Specifications

Length: 23.1 in. (58.7 cm)
Width: 9.55 in. (24.5 cm)
Height: 14.95 in. (37.8 cm)
Weight: Approximately 31 lb. (14 kg)
Electrical Requirements: 425 Watts at 115V
Heat Output: Approximately 1250 Btu/hr.
Req'd Temperature: 60° to 90° F (16° to 32° C)
Relative Humidity: 20% to 80% noncondensing
Maximum Wet Bulb Temperature: 75° F (23° C)
Maximum Temp. Rate of Change: 12° F/hr. (6° C/hr.)

Expanded Configuration Example

The following example is representative of a configuration which was previously unavailable due to the 5-slot limitation of the original Wang PC chassis:

Option	Description	Expansion Slots Req'd
PC-PM001	Monochrome Display Card	1
PC-PM002	Monochrome Graphics Card	1
PC-PM021	Winchester Controller Card	1
PC-PM032	Memory Expansion Card	1
PC-PM042	Multiport Controller Card	1
PC-PM070	Local Interconnect Option Card	1
	Total	6

(continued)

WANG PC EXPANDED CHASSIS ANNOUNCED (continued)

ORDERING INFORMATION

The expanded chassis will be available for new Wang PC orders and for customer upgrades beginning in January 1984, with volume shipments expected in February 1984. The incremental cost of the expanded chassis on new orders will be $350. An upgrade chassis (part number PC-XC, consisting only of the expanded chassis, power supply, backplane, and enclosure) will be $1380.

The Wang policy of offering on-site Wang PC installation service for a $200 fee will also apply to the 8-slot chassis, as well as to the installation of upgrades from the old unit to the new expanded unit. Customers will continue to have the option of installing their own systems and upgrades.

Prices for the expanded chassis are as follows:

Model Number	Description	Purch. Price	Month. Maint.
PC-XC	Expanded Chassis Only (Required to Upgrade from Standard Chassis)	$1,380	N/A
PC-XC1	Expanded Chassis Base Unit (128KB), with Single Diskette Drive (360KB), Keyboard, MS-DOS Operating System and Interpretive BASIC	2,945	$18
PC-XC2	Expanded Chassis Base Unit (128KB), with Dual 360KB Diskette Drives, Keyboard, MS-DOS Operating System and Interpretive BASIC	3,470	26
PC-XC3	Expanded Chassis Base Unit with Single Diskette Drive (360KB), 10MB Winchester Drive, Winchester Controller Card, Keyboard, MS-DOS Operating System and Interpretive BASIC	5,330	42

NOTE: Monitors/Monitor Cards are not included in the above configurations.

PC-PM011 PRINTER DISCONTINUED

by Wang PC Product Marketing

As of November 1, 1983, Wang order processing will no longer accept orders for the Wang PC printer model PC-PM011. The model PC-PM011 is being replaced by the model PC-PM012, a newly-announced 20-cps daisy wheel printer for the Wang Professional Computer.

The current backlog of the model PC-PM011 is being filled with the new model PC-PM012. The customer benefits by receiving a very reliable printer at a considerably lower cost ($1,295 versus $2,695). The substituted printers will include a letter of explanation, and the customer will be billed at the lower price.

For further information on the PC-PM012 printer, refer to pages 69-70 of the October issue of ISO Tech News, publication 700-8933-02.

WANG PC
VT-100 EMULATION
ANNOUNCED
by Wang PC
Product
Marketing

DESCRIPTION

Wang Laboratories is pleased to announce VT-100 Emulation support on the Wang Professional Computer. This emulator provides communication between a Wang PC and a Digital Equipment Corporation host to enable remote interactive on-line processing. VT-100 Emulation runs on the Wang PC to allow the PC to emulate a DEC VT-100 video terminal. The VT-100 is a high-speed, asynchronous terminal that is used with a variety of DEC hosts such as the VAX product line and the PDP product line. With VT-100 Emulation, a Wang PC can communicate with a DEC host and use most of the host-initiated commands and features. The user will be able to select either VT-100 mode or VT-52 mode. The VT-52 is an older DEC terminal, also asynchronous, which provides a subset of VT-100 functions.

Supported Functions

Among the VT-100 and VT-52 features that will be supported are the following:

- Leased or dial-up connections
- Point-to-point asynchronous operation
- Line speeds of 50 to 9600 bps for send and receive
- Full 1920 character (24 X 80) screen support
- Menu-driven SET-UP mode
- 25th line used as status line
- ANSI/VT52 mode selection (VT-100 uses ANSI mode)
- Most ANSI and VT-52 escape sequences

Unsupported Functions

Due to hardware restrictions that prevent Wang from emulating all the VT-100 and VT-52 features, the following features will NOT be supported:

- Double height and double width characters
- Smooth scroll
- 132 column support
- Graphics
- Separate transmit and receive speeds

MARKETING STRATEGY

VT-100 Emulation is targeted for the Wang user who needs occasional access to an application or data base on a DEC host. Not only can Wang PC users access a DEC host, but VS, 2200, OIS, and Alliance users can use the Wang PC as a workstation and have access to DEC hosts as well. Essentially, any user on any Wang system who is using a PC as a workstation can access a DEC host by using this emulation.

A DEC VT-100 terminal with a basic configuration does not have disk storage or printer support. Wang will be offering both the file transfer capability and the local printer support as part of the VT-100 Emulation shortly.

(continued)

WANG PC VT-100 EMULATION ANNOUNCED (continued)

The VT-100 Emulation announcement strengthens Wang's position in the multi-vendor marketplace. This package adds to Wang's wide selection of terminal emulators, which give users easy access to information sources on both Wang and non-Wang systems.

ORDERING INFORMATION

The Wang PC is a low-cost alternative for Wang workstation users who need access to an application or data base resident on a DEC system. The Wang PC VT-100 Emulation requires, as a minimum, Wang PC hardware configuration PC-002, consisting of one diskette drive, a Wang PC monochrome display, a character board, and 128K of memory. Additionally, an RS-232-C modem cable is required, and either an asynchronous modem (such as Wang's WA3451), or a null modem for asynchronous communications up to 50 feet.

VT-100 Emulation availability is scheduled for
The PC VT-100 Emulation package may be ordered as model number 195-2781-9 at a cost of $200, with an anticipated availability of January 1984. File transfer and local printer support is scheduled for availability during the forth quarter of fiscal year '84. For additional information, refer to the Wang PC VT-100 Data Sheet, 700-8656.

PC SOFTWARE RELEASE LEVELS

Currently-released core software for the Wang Professional Computer is listed below. Although an attempt has been made to list hardware and software requirements of each software release, this list of requirements may not be complete. Newly-released software is indicated by an underscored version number. When ordering software, specify the model number; the package number is for internal use by Software Distribution.

MODEL #	I/U*	DESCRIPTION	PKG. #	VERSION	HARDWARE REQUIREMENTS**	SOFTWARE REQUIREMENTS
System Software						
PC-SS001	U	System Software Diskette	195-2326-9	V1.10	128K RAM, 1,2,3+,4 or 5	(Has MS-DOS V2.01 & BIOS V1.10)
PC-PM050	I	CP/M-80 Emulation	195-2738-9	V1.00	128K RAM, 1,2,3+,4 or 5, 6 or 7	System Software V1.00 or later
Languages						
PC-SS010	I	MS-Compiled BASIC	195-2327-9	V1.00	128K RAM, 1,2,3+,4 or 5	System Software V1.00 or later
PC-SS012	I	MS-FORTRAN	195-2329-9	V3.04	256K RAM, 1,2,3+,4 or 5	System Software V1.00 or later
PC-SS011	I	MS-Pascal	195-2328-9	V3.04	256K RAM, 1,2,3+,4 or 5	System Software V1.00 or later
Productivity						
PC-AS001	U	PC Multiplan	195-2338-9	V1.06.05	128K RAM, 1,2,3,4 or 5	System Software V1.10 or later
PC-AS002	U	PC Word Processing	195-2339-9	V1.11	128K RAM, 1,2,3+,4 or 5	System Software V1.10 or later
PC-CS001	I	Productivity I (Multiplan/WP/Async.)	196-0002-9	N/A	128K RAM, 1,2,3+,4 or 5	System Software V1.10 or later
Telecommunications						
PC-SS020	I	PC Async.Comm. (inc.2200)	195-2331-9	V1.00	128K RAM, 1,2,3,4 or 5	System Software V1.00 or later
PC-PM041	I	PC Local Communications	195-2647-9	V1.01	128K RAM, 1,2,3,4,6	System Software V1.10 or later
PC-SS063	I	3276 SNA/SDLC Emulation	195-2605-9	V1.00	128K RAM, 1,2,3,4 or 5, 8	System Software V1.10 or later
PC-WSNT-MS	I	PC Multipoint Secondary***	195-2803-9	V2.1	128K RAM, 1,2,3,4 or 5, 9	System Software V1.10 or later
PC-WSNT-BSS	I	BSS File Trans./Term.Em.***	195-2806-9	V2.1	128K RAM, 1,2,3,4 or 5, 9	System Software V1.10 or later

* I = Initial Release; U = Updated Version

** Hardware Requirements:
1 - Wang PC CPU Board #210-8221, with V1.00 Boot EPROMs (ECO 26344)
2 - Wang PC Keyboard
3 - One 5.25" DSDD diskette drive
3+- Two 5.25" DSDD diskette drives preferred
4 - PC-PM004 Wang Monochrome Monitor with PC-PM001 character resolution board #210-8243
5 - Industry-standard monitor (RGB or B&W) with PC-PM003 character/graphics board #210-8222 using 80-column mode only
6 - PC-PM041 Wang PC Local Communications Option Card Set (Data Link Board #210-8245 and CPU Board #210-8246)
7 - PC-PM050 Wang PC CP/M 80 Emulation Card #210-8248
8 - PC-PM042 Wang PC Multiport Controller Card #210-8251
9 - PC-PM040 Wang PC Remote Telecommunications Card #210-8232

*** Software formerly bundled as Remote WangNet with the PC-PM040 Remote Communications Option. Orders for PC Remote WangNet must now specify a Transport (such as PC-WSNT-MS), a Service (PC-WSNS-BSS Basic Support Service, containg File Transfer and VS Terminal Emulation), and the Wang PC Remote Telecommunications card (PC-PM040). The three items were formerly bundled in PC-PM040. For further information, see pages 112-119 of this issue. Note that color (RGB) monitors do not function with the PC Remote WangNet software.

USING PRINTER DEVICE DRIVERS ON THE WANG PC

by Wang PC Product Marketing

Third-party printer support on the Wang Professional Computer is accomplished via printer device drivers, which are .COM files containing code necessary to implement the functions of a particular printer. Without the use of a printer driver, application programs must send to the printer the exact data and escape sequences needed. In order to support different printers, the application program must know the correct printer codes for selecting pitch, underlining, bold print, etc. This is frequently accomplished by an install utility which must be run prior to using the application package initially.

Use of Printer Device Drivers on the Wang PC

By utilizing printer device drivers, the Wang PC implementation of MS-DOS eliminates the need for an application program to transmit the type of printer information discussed above. Within the driver, escape sequences are translated to the appropriate value for the attached printer. Device drivers also enable the support of non-ASCII printers on the Wang PC.

On Version 1.00 of the Wang PC System Diskette, one printer device driver is available. This driver, DW20DRVR.COM, supports the PC-PM011 DW-20 daisy printer. If no driver is installed, printing is directed to the parallel port (PRN) and the attached printer must be addressed specifically.

With Version 1.10 of the Wang PC System Diskette, the following printer device drivers are available:

Driver File Name	Printer
EPSON.COM	Epson MX80 (PC-PM010)
DW20DRVR.COM	Wang DW-20 (PC-PM011)
NEC.COM	NEC Spinwriter 3530
GS.COM	Generic serial driver*
GP.COM	Generic parallel driver*
PM012.COM	Wang daisy (PC-PM012)**

* Generic printer drivers will not provide the full functionality of the printer. For example, escape codes such as superscript, subscript, underline, bold, etc., are not supported.

** Printer driver software for the new PC-PM012 daisy printer is available separately as part number 195-2704-9 for use with Wang System Diskette 1.10. The PC-PM012 printer driver software is for use with Wang PC System Software Release 1.10 only; it will become obsolete with the release of System Software 1.20, which will include a table-driven printer device driver. Wang PC System Software Release 1.20 is expected to be available in December 1983.

(continued)

USING PRINTER DEVICE DRIVERS ON THE WANG PC (continued)

Installing a Printer Driver Under PC System Software 1.10

Wang PC System Software Release 1.10 consists of two diskettes, referred to as System Diskette #1 and System Diskette #2. The installation of a printer device driver requires the modification of one line in the CONFIG.SYS file located on System Diskette #1. The system reads the CONFIG.SYS file each time the Wang PC is IPLed. The modified line tells the system which type of printer has been connected to the Wang PC and sets the appropriate printer parameters. With System Software Release 1.10, only one printer device driver can be installed at any given time. (Both parallel and serial printers will be supported with System Software Release 1.20, meaning that one parallel and one serial printer device driver can be installed.)

To install a printer driver on the Wang PC using System Software Release 1.10, the following steps should be performed:

1. Start your Wang PC by inserting diskette #1 of System Software Release 1.10.

2. Select the System Utilities option from the Main System Menu selections. Select the new Disk Copy Utility from the System Utilities menu, and make a backup copy of System Software diskette #1. If the PC-PM012 printer driver software is to be installed, copy PM012.COM from diskette #195-2704-9 to System Software diskette #1.

3. Cancel out of the System Utilities. Select the Program Development option from the Main System Menu.

4. Remove System Software diskette #1 and insert System Software diskette #2.

5. Select the Editor from the Program Development Menu. This will load the new PC Screen Editor.

6. Type CONFIG.SYS on the line provided for filename. Remove diskette #2 and replace it with diskette #1. Press the EXECUTE key. The following lines will appear on your screen:

```
SWITCHAR = -
AVAILDEV = TRUE
BREAK    = ON
BUFFERS  = 10
FILES    = 10
SHELL    = /MENUDRVR.COM - N001 - P/BIN
```

(continued)

USING PRINTER DEVICE DRIVERS ON THE WANG PC (continued)

7. Use the down arrow key to move the highlighted area to the last line of the CONFIG.SYS file. If the last line is not an existing printer device driver and if there is no space between the last line and the bottom border, then press the EXECUTE key to create a line space for entering the device driver file name as shown in step 8. (Each time the EXECUTE key is pressed at this point, it will create another line space. To delete a line space, press the SHIFT and DELETE keys simultaneously.) If the last line is an existing printer device driver entry and you want to install a different driver, simply substitute the existing driver file name with the new one, as shown in step 8.

8. In the new line, type DEVICE = driver-file-name, leaving a space before and after the "=" sign. For example, if you are connecting a PC-PM012 daisy printer to the Wang PC, you would change the last line to read:
   DEVICE = PM012.COM

9. Press the SHIFT and CANCEL keys simultaneously and then press EXECUTE to save the changes you have made to the file in the editor.

10. Restart your system. During the start-up procedure, the system reports the type of driver installed. If a serial printer driver has been installed, you will be prompted for various parameters required by the printer driver before it can operate.

11. Make a backup copy of your newly configured System Software diskette #1.

The system must be re-IPLed to actually load the device driver. Once this is done, all subsequent IPLs will automatically load the device driver until it is removed or changed in the CONFIG.SYS file. During the IPL sequence, the file name of any device driver that is installed will be displayed on the screen before the date and time screen is displayed. If the system cannot find the specified printer driver file during the installation procedure, the message "Driver file is bad or missing" will be displayed.

To remove a printer device driver, run the PC Screen Editor and delete the line entry DEVICE = printer-driver-file-name from the CONFIG.SYS file (or substitute the existing driver file name with that of a different driver). Then press the SHIFT and CANCEL keys simultaneously, press EXECUTE, and re-IPL the system.

(continued)

USING PRINTER DEVICE DRIVERS ON THE WANG PC (continued)

Wang PC Word Processing Packages 1.10 and later are written to expect a printer device driver. This does not require an install utility to be run prior to the initial use of the Word Processing package. However, the WP package will print incorrectly (i.e., escape sequence characters will appear in the printout) if no device driver is installed.

Appendix E of the Wang PC Program Development Guide, manual 700-8018, contains detailed information on device drivers. The Program Development Guide should also be used by programmers to determine the specific ANSI escape sequences used by the device drivers. Information regarding the generalized table-driven printer driver included in System Software Release 1.20 will appear in a future issue of ISO Tech News.

WANG SYSTEMS NETWORKING ANNOUNCED
by Networking Product Marketing

DESCRIPTION

Wang Laboratories is pleased to announce the Wang Systems Networking communications strategy and family of software products. The introduction of this strategy demonstrates Wang's commitment to the Networking technology and provides a unified, competitive approach to selling Wang products in the distributed processing marketplace.

Although Wang Systems Networking encompasses all Wang product lines, only the VS, 2200, and Wang PC product lines are discussed in this article. Information regarding networking on the Alliance and OIS product lines has been made available to Wang's direct sales organization.

The Wang Systems Networking strategy is divided into the functional categories of Network Transports, Network Services, and Network Applications. Examples of these types of WSN functionality are shown in Figures 1 through 3.

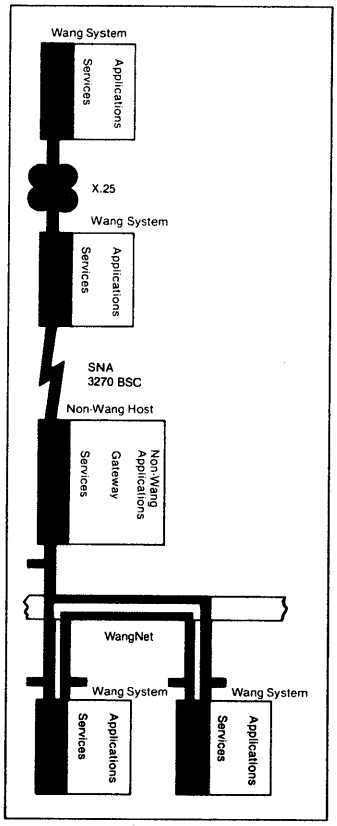


Figure 1. WSN Transports

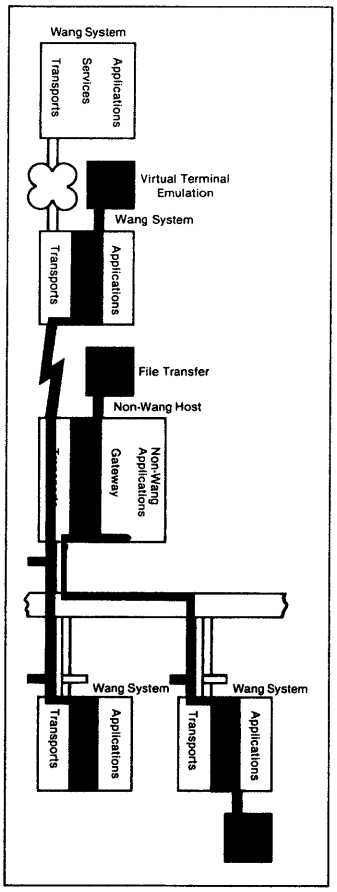


Figure 2. WSN Services

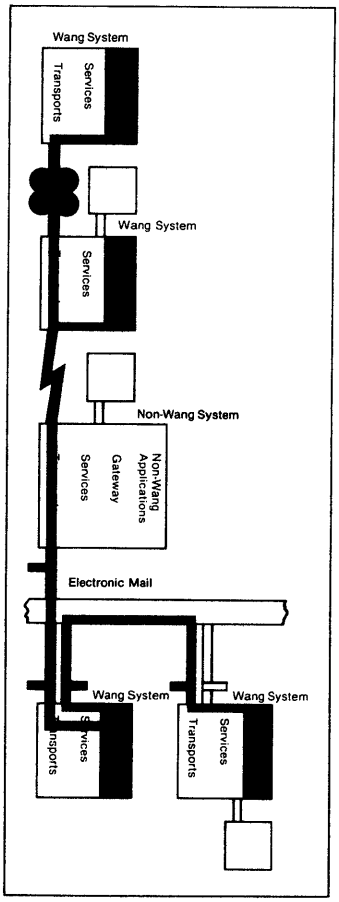


Figure 3. WSN Applications

(continued)

WANG SYSTEMS NETWORKING ANNOUNCED (continued)

Network Transports provide transparent system-to-system connections across the network. WSN transport products include X.25, multipoint primary and secondary, point-to-point, Wang Band, and Information Distribution System (IDS) BSC and SNA interfaces.

Network Services manage the exchange of information among Wang systems. WSN service products include file transfer, VS terminal emulation and interface, and Information Distribution System (IDS) host services.

Network Applications act as the user interface, providing distributed processing solutions such as electronic mail, electronic filing, network user directory, software distribution, and other user-defined applications.

WSN Transport Products

WSN Multipoint Transport:
The Wang Systems Networking Multipoint Transport supports WSN services and applications between a Wang VS system acting as a primary controller, and Wang VS, OIS, PC, Alliance or 2200 systems acting as secondary controllers. Using this transport, any combination of Wang secondary systems can access the resources of and exchange information with a primary VS computer using a polled, full-duplex, link-level protocol (HDLC). This transport supports multipoint communications over full-duplex, permanent lines. Line speeds from 2400 baud to 19,200 baud are supported.

WSN Point-Point Transport:
The Wang Systems Networking Point-Point Transport supports WSN services and applications between any combination of Wang VS, OIS, PC, Alliance, and 2200 systems, using a contention link-level protocol (HDLC). This transport supports point-point communications over half-duplex, switched lines at speeds of 1200 baud to 9600 baud. Point-point communication is also supported over full-duplex, permanent lines at speeds of 1200 baud to 19,200 baud.

WSN X.25 Transport:
WSN X.25 Transport supports Wang Systems Networking services and applications between Wang systems through a public data network supporting the X.25 packet switching protocol. WSN X.25 Transport is described in more detail on pages 124-127 of this issue.

(continued)

WANG SYSTEMS NETWORKING ANNOUNCED (continued)

IDS Transport Interface:
Wang's Information Distribution System (IDS) provides a pathway that supports WSN services and applications between VS systems and provides value-added capabilities between the VS and the host. IDS supports both SDLC and BSC transport protocols and consists of a host-based product (IDS Host Services) and a VS-based product (IDS VS Transport Interface). For a further discussion of IDS, see pages 120-123 of this issue.

WSN Service Products

File Transfer Service:
The WSN File Transfer Service allows the exchange of files between Wang systems. All VS file types can be exchanged among VS systems; word processing documents and VS print files can be exchanged by all types of Wang systems. VS applications can access the File Transfer Service via a program interface (the VS Submit macro).

VS Terminal Emulation Service:
Users can attach Wang workstations with keyboards capable of supporting VS data processing (DP) functions to a VS system processor on the network to perform all VS DP functions except: TC-3270 Emulation, Siemens MSV1 Emulation, ICL 7182 Emulation, Keyentry, Word Processing, Ideographics, and any special products which downline-load microcode. The ability to attach to Wang processors allows the user to work in the environment of the other processors, a benefit of networking.

VS Virtual Terminal Interface (VTI) Service:
VS VTI provides a software interface through which VS application programs access a WSN transport. For example, a VS network application can be designed to allow the user to request a data record from any VS system in the network. This application is composed of VS server and requester tasks executing on the VS systems in the network. These tasks use the VS VTI service to exchange information using an application-level protocol specifically designed for data base retrieval.

Basic Support Services:
Basic Support Services (BSS) bundle the WSN File Transfer service and the WSN Terminal Emulation service into one package. At present, BSS is the only WSN service available for the Wang Professional Computer and the 2200 product lines.

(continued)

WANG SYSTEMS NETWORKING ANNOUNCED (continued)

WSN Application Products

Wang Office uses Wang Systems Networking to provide local and wide area office communications, allowing the user to exchange information and share resources anywhere within the Wang environment. It represents a natural and successful evolution of Wang Office Automation, providing word processing, electronic mail and messaging, time management, directory services, and electronic file management under one umbrella product.

Wang Office was designed to combine the best features of VS Express, MAILWAY and Alliance. Wang Office also provides a new filing and retrieval system which supports not only text and data but also image and voice. This filing and retrieval system can be installed on either a centralized or a distributed basis. Wang Office is offered on the VS, OIS, Alliance and Wang PC product lines. Any currently-installed VS, OIS, Alliance or PC can be upgraded to participate in a Wang Office network.

MARKETING STRATEGY

The marketplace for connections between systems can be separated into wide area networks, host-controlled networks, and public data networks. Rather than predefining the type of network transport a customer can use, Wang Systems Networking offers a variety of alternatives that span the entire range of requirements, as shown below.

Wide Area Networks	Host-controlled Networks
Multipoint Transport	IDS Transport Interface
Point-Point Transport	Public Data Networks
	X.25 Transport

Wide Area Networks

The Wide Area Networking market segment includes the electronic transmission, receipt, and exchange of information over distances that are essentially unlimited. This includes transmission over voice-grade or data-grade switching systems provided by the common carriers (e.g., AT&T Long Lines). In some cases, transmission is over a private communications network owned by the customer.

WSN products participate in this market in two ways. The Multipoint transport allows any combination of Wang VS, OIS, 2200, Wang PC, and Alliance systems to exchange information with a Wang VS system over a leased (non-switched) communications link. In the Multipoint configuration, a VS system is the primary system and all other systems on the link are secondary systems. Information can be exchanged between primary and secondary systems only. This link is full-duplex and requires a permanent (non-switched) connection.

(continued)

WANG SYSTEMS NETWORKING ANNOUNCED (continued)

Alternatively, the Point-Point transport allows any pair of Wang VS, 2200, OIS, PC and Alliance systems to exchange information on a communications link. In this configuration, there is only one pair of systems per link, but a system may communicate with other links. These links can be half-duplex or full-duplex, and support switched (dial) or permanent (leased) connections.

Host-Controlled Networks

Host-controlled networks are hierarchical networks in which the flow of information is controlled by the host system, such as IBM's Systems Network Architecture (SNA). In the SNA network, information exchange is between the host mainframe (e.g. 4341) and the distributed processing node (e.g. 8100). Any information exchanged between two distributed nodes must first pass through the host system.

Many Wang customers have IBM-based data processing centers with large IBM networks. Wang Systems Networking participates in this market though the Information Distribution Systems (IDS) family of products. IDS provides a pathway that supports Wang Systems Networking services and applications between VS systems and provides value-added capabilities between the VS and the host. IDS supports both SDLC and BSC transport protocols and consists of a host-based product and a VS-based product as described on pages 120-123.

Public Data Networks

Public Data Networks (PDNs) are wide area communications networks which exist to transport data quickly and unchanged to any part of the network. PDNs do not provide network services, only a network transport mechanism. This mechanism allows computers of many different vendors to share the same network and many value-added common carriers provide only this service to their subscribers: Telenet, Tymnet, Satellite Business Systems, etc.

The WSN X.25 Transport product provides access to those PDNs that support the CCITT recommendation X.25 (packet-switching transport). In conjunction with Wang Systems Networking services, this transport allows Wang systems to exchange information over an X.25 PDN. (See pages 124-127.)

ORDERING INFORMATION

To increase the marketability of Wang Systems Networking products, WSN services are being packaged and priced separately from WSN transports. As a result, it was necessary to reprice and rename the model numbers of existing network products. The new model numbers categorize all WSN products as either transport (WSNT), service (WSNS), application, or management products.

(continued)

WANG SYSTEMS NETWORKING ANNOUNCED (continued)

ORDERING INFORMATION

The following table shows the existing communications products in terms of the new WSN model numbers:

New Model #	Old Model #	Former Status
VS-WSNT-MP-x*	195-2171-x	Formerly Remote WangNet Facility (Primary)
VS-WSNT-MS-x	195-2218-x	Formerly Remote WangNet Facility (Secondary)
VS-WSNS-FT-x	---	Formerly bundled with Remote WangNet Facility
VS-WSNS-LGN-x	---	Formerly bundled with Remote WangNet Facility
PC-WSNT-MS	---	Bundled with PC Remote Comm. Option (PC-PM040)
PC-WSNS-BSS	---	Bundled with PC Remote Comm. Option (PC-PM040)
2200-WSNT-MS-3	195-2200-3	Formerly 2200 Remote WangNet Facility (MVP)
2200-WSNT-X25-3	195-2195-3	Formerly X.25 Packet Network Support (MVP)
2200-WSNS-BSS-3	---	Bundled with Remote WangNet Transport
2200-WSNT-MS-5	195-2200-5	Formerly 2200 Remote WangNet Facility (LVP,SVP)
2200-WSNT-X25-5	195-2195-5	Formerly X.25 Packet Network Support (LVP,SVP)

* x specifies media type, where:
  3 = single-sided single density (SSSD) diskettes
  5 = dual-sided double-density (DSDD) diskettes
  (Wang PC software is distributed on DSDD mini-diskettes.)

Wang Systems Networking transport and service products require the following hardware and software pre-requisites:

VS Software Pre-requisites for WSN

VS Operating System 6.10.00 or later

VS Hardware Pre-requisites for WSN

Only one WSN transport (Multipoint, Point-Point, X.25) can be supported per communications controller.

VS 85/90/100:
- . 22V27 Serial IOP
- . VS-6554 External Chassis
- . VS-TC 64K Communications Controller*

VS 80:
- . 22V17 Serial IOP
- . VS-6554 External Chassis
- . VS-TC 64K Communications Controller*

VS 25/45:
- . A 25V76 Communications Controller or
- . VS-6554 with VS-TC 64K Communications Controller*

* X.25 requires a VS-TC1 128K Communications Controller

(continued)

WANG SYSTEMS NETWORKING ANNOUNCED (continued)

Wang PC Software Pre-requisites for WSN
MS-DOS Release 2.01 or later
BIOS Release 1.1 or later

Wang PC Hardware Pre-requisites for WSN
Wang PC central processing unit with bootstrap PROM
Wang PC screen display and universal keyboard
PC-PM040 Remote Communications Option
Dual diskette drive or Winchester drive suggested

2200 Software Pre-requisites for WSN
MVP, LVP, SVP:
. Operating System Release 2.4 or later
. CPU memory must be partitioned to support: UNIV (5K), ROUTER (3.75K), and a mix of single File Transfer (52.25K) and VS Terminal Emulation services (28K).
. Integrated Communications Services (ICS) Utilities, model # 195-2192-3. (See ISO Tech News #1, page 39.)

2200 Hardware Pre-requisites for WSN
For MVP: 2228D-4 64K communications controller
For LVP/SVP: OP28D-4 64K communications controller

New WSN model numbers are constructed as follows: The first section specifies the product line (VS, 2200, PC, etc.). The second section of the model number indicates the Wang Systems Networking product type, and the third section designates the particular product where MP = Multipoint Primary, MS = Multipoint Secondary, PP = Point-to-Point, X25 = X.25, LGN = VS Terminal Emulation Service, FT = VS File Transfer, VTI = VS Virtual Terminal Interface, BSS = Basic Support Services (bundled Terminal Emulation and File Transfer). The model number suffix specifies media type where 3 = SSSD diskette and 5 = DSDD diskette. Please note and use these new model numbers when ordering Wang Systems Networking products. Effective October 1983, orders using the old model numbers will no longer be accepted. Prices of the Wang Systems Networking products are given on the following page.

Refer to the following publications for more information on Wang Systems Networking:
WSN Overview Data Sheet (700-8625)
WSN File Transfer Service (700-8624)
WSN VS Terminal Emulation Service (700-8644)
WSN VS Virtual Terminal Interface Service (700-8667)
WSN Multipoint Transport (700-8629)
WSN Point-Point Transport (700-8631)
WSN X.25 Transport (700-8627)
WSN IDS Transport (700-8635)

(continued)

WANG SYSTEMS NETWORKING ANNOUNCED (continued)

Prices and anticipated availability dates for the Wang Systems Networking products are as follows:

Model #	Anticipated Availability	Description	Initial Lic.Fee	Monthly Lic.Fee
VS-WSNT-MP-x*	Now	VS Multipoint Primary Transport	$1,500	$ 13
VS-WSNT-MS-x	Now	VS Multipoint Secondary Transport	1,200	10
VS-WSNT-PP-x	Q2,FY'84	VS Point-Point Transport	1,500	13
VS-WSNT-X25-x	Q2,FY'84	VS X.25 Transport	1,500	13
VS-WSNS-LGN-x	Now	VS VS Terminal Emulation Service	400	4
VS-WSNS-FT-x	Now	VS File Transfer Service	600	5
VS-WSNS-VTI-x	Q3,FY'84	VS Virtual Terminal Interface	600	5
2200-WSNT-MS-3	Q3,FY'84	MVP Multipoint Secondary Transport	500	N/A
2200-WSNT-PP-3	Q3,FY'84	MVP Point-Point Transport	500	N/A
2200-WSNT-X25-3	Q3,FY'84	MVP X.25 Transport	500	N/A
2200-WSNS-BSS-3	Q3,FY'84	MVP Basic Support Services	100	N/A
2200-WSNT-MS-5	Q3,FY'84	SVP/LVP Multipoint Secondary Transport	500	N/A
2200-WSNT-PP-5	Q3,FY'84	SVP/LVP Point-Point Transport	500	N/A
2200-WSNT-X25-5	Q3,FY'84	SVP/LVP X.25 Transport	500	N/A
2200-WSNS-BSS-5	Q3,FY'84	SVP/LVP Basic Support Services	100	N/A
PC-WSNT-MS	Now	PC Multipoint Secondary Transport	250	N/A
PC-WSNT-PP	Q3,FY'84	PC Point-Point Transport	250	N/A
PC-WSNT-X25	Q3,FY'84	PC X.25 Transport	250	N/A
PC-WSNS-BSS	Now	PC Basic Support Services	100	N/A

* x specifies media type, where:
  3 = single-sided single density (SSSD) diskettes
  5 = dual-sided double-density (DSDD) diskettes
  (Wang PC software is distributed on DSDD mini-diskettes.)

INFORMATION DISTRIBUTION SYSTEM ANNOUNCED
by Networking Product Marketing

DESCRIPTION

The Information Distribution System (IDS) family of software products, a part of Wang Systems Networking, provides Wang VS systems with a communications path to and through an IBM mainframe over an IBM Systems Network Architecture (SNA) or Bisynchronous (BSC) network. IDS provides a pathway that supports Wang Systems Networking (WSN) services and applications between VS systems and provides value-added capabilities between the VS and the host.

IDS supports both SDLC and BSC transport protocols and consists of a host-based product and a VS-based product. The IDS software offerings are as follows:

IDS Host Services Level I (HOST-WSNS-IDS1)
- . VS File Transfer Service
- . VS Terminal Emulation Service

IDS Host Services Level II (HOST-WSNS-IDS2)
- . VS File Transfer Service
- . VS Terminal Emulation Service
- . Host Store and Forward

IDS VS Transport Interface (VS-WSNT-IDS)

IDS Host Services Level I

The IDS Host Services Level I software, allows Wang Systems Networking Services (such as File Transfer and VS Terminal Emulation) and applications to operate between Wang VS systems through an IBM network (i.e., pass-through). This software, installed on the host system, allows the host computer to act as a switching node on the network for passing data between VS systems.

IDS Host Services Level II

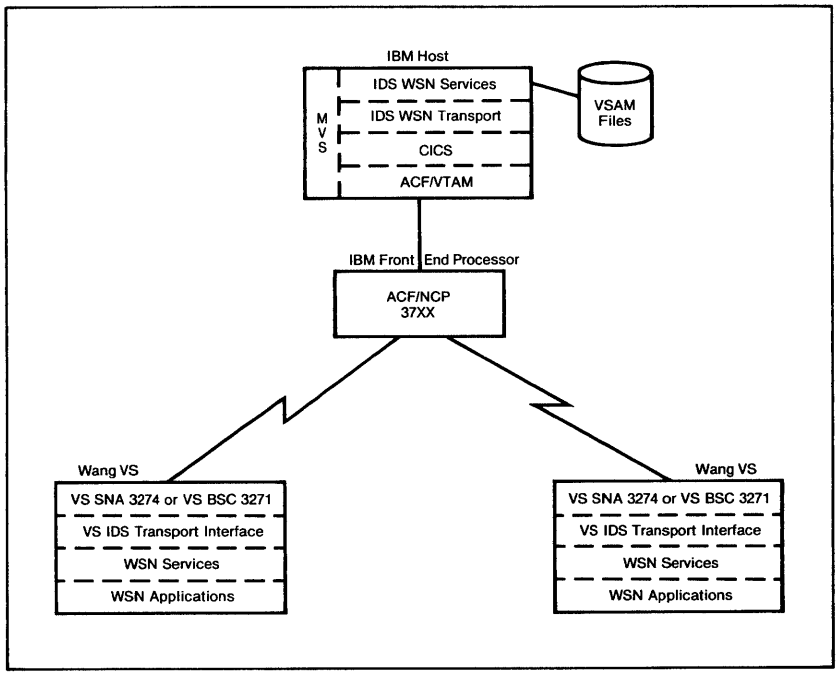
Alternatively, the customer can purchase the IDS Host Services Level II software. IDS Level II provides Level I Host Services (pass-through) plus Host Store and Forward service. The Host Store and Forward service allows Wang files to be stored on an IBM mainframe computer for use by host applications or for distribution to other nodes within the network. The customer can upgrade from Level I to Level II by purchasing the IDS Host Upgrade software.

IDS VS Transport Interface

The IDS Level I Host Services software and the IDS Level II software require that the VS be equipped with the IDS VS Transport Interface software and configured with the appropriate 3270 SNA or BSC hardware and software products. The IDS VS Transport Interface software maps the WSN services to the appropriate 3270 transport product.

INFORMATION DISTRIBUTION SYSTEM ANNOUNCED (continued)

The figure below illustrates the IDS network architecture:



To make communications convenient and efficient, IDS provides a number of host interactive-user facilities to manage activity on the host system:

- On-line configuration enables users to interactively create, delete, and modify node definitions.
- Network monitoring enables users to view current network usage and status information for various sessions.
- Distribution list facility enables users to create, modify, and delete distribution lists to specify Store and Forward dissemination of files (IDS Level II only).
- Distribution facility enables users to specify and monitor Store and Forward distribution of files and documents (IDS Level II only).

These facilities can be accessed through any 3270 terminal, or through a Wang terminal using Wang's 3270 emulation products, by logging on to the IDS host application via CICS. Security is provided by host-environment facilities, such as IBM's Advanced Communications Function (ACF) or the Customer Information Control System (CICS).

(continued)

INFORMATION DISTRIBUTION SYSTEM ANNOUNCED (continued)

Communication with the Host System

The host system communicates with Wang Systems Networking services (File Transfer and VS Terminal Emulation services) through either BSC or SNA virtual terminals, depending on the host network configuration. These virtual devices reside on each VS system in the IDS network and are created by the IDS VS Transport Interface software in conjunction with the VS 3270 Emulators.

The IDS VS Transport Interface software uses two 3270 virtual terminal addresses per IDS host link to achieve full duplex operation. Since the IDS VS Transport Interface uses the standard VS 3270 product with its associated hardware, software, and communications lines, IDS virtual devices operate as part of the existing 3270 SNA or BSC emulators. In an SNA network, these functions can operate concurrently with the SNA 3777 Emulator.

MARKETING STRATEGY

Wang Systems Networking provides a total communications environment with which users can exchange information and share resources. In designing a distributed processing network, the user can consider a variety of network applications, network topologies, and link protocols offered by the Wang Systems Networking products.

Wang's IDS products allow the user a choice of either a BSC or SDLC link transport through which certain Wang Systems Networking services and applications are provided under host control (IBM SNA/BSC network environment). No other WSN products operate under host control. Thus this product is positioned to be be sold into the host-controlled (IBM-based network) communications environment.

The primary market for IDS is the customer base with both Wang systems and IBM mainframes, wishing to integrate their systems into a single communications network. With the introduction of IDS, Wang Systems Networking products can be competitive in markets where the customer's network is or will be IBM's SNA or BSC. With IDS, customers with a large investment in SNA can consider Wang VS systems when expanding or replacing network processing nodes. IDS Host Services Level I should help sell Wang systems to those accounts that have chosen an SNA or IBM BSC communications network but wish to communicate among their Wang systems without a second network.

Thus, IDS demonstrates that the customer can purchase the superior office automation products of Wang Laboratories, share information with non-Wang systems, and still protect an investment in existing equipment.

(continued)

INFORMATION DISTRIBUTION SYSTEM ANNOUNCED (continued)

ORDERING INFORMATION

The IDS VS Transport Interface software requires a VS CPU running VS Operating System Release 6.11.00 or later. The IDS Host Service software requires an IBM host system running CICS through ACF/VTAM under MVS. Both a VS BSC 3271 Emulator (195-2089-x) and a VS SNA 3274 Emulator (195-2169-x) are available from Wang. One of these emulators (either BSC or SNA) is required for IDS communications to the host. These requirements are summarized as follows:

VS System Requirements

Each VS system in the IDS network requires the following:

- IDS VS Transport Interface software
- VS SNA 3274 or VS BSC 3271 Emulator software
- VS BSC or SNA Data Link Processors (22V06, 6554, etc.)
- Appropriate communications lines and data communications equipment
- For VS File Transfer, VS Operating System 6.11.00 or later
- For VS Terminal Emulation, VS Operating System 7.00.00 or later

Host System Requirements

Each IDS host requires the following facilities:

- Wang IDS Host Services Level I or Level II software
- IBM CICS teleprocessing monitor
- IBM ACF/VTAM access method and IBM MVS Operating System
- Appropriate communications Front End Processor (e.g., IBM 3705)
- Appropriate communications lines and data comm. equipment
- IBM VSAM access method

Prices and anticipated availability dates for Wang IDS software products are as follows:

Model #	Anticipated Availability	Description	Initial Lic.Fee	Monthly Lic.Fee
VS-WSNT-IDS-x*	Q3,FY'84	IDS VS Transport Interface	$ 1,000	$ 9
HOST-WSNS-IDS1	---	IDS Host Services Level I:	45,500	TBA
	Q3,FY'84	File Transfer Service		
	Q4,FY'84	VS Terminal Emulation		
HOST-WSNS-IDS2	Q1,FY'85	IDS Host Services Level II	58,000	TBA
UJ-3240	Q1,FY'85	IDS Host Service Upgrade I to II	18,300	N/A

* x specifies media type, where:
  3 = single-sided single density (SSSD) diskettes for VS 80,85,90,100
  5 = dual-sided double-density (DSDD) diskettes for VS 25,45,85,90,100

For further information, refer to the following publications:

- IDS Transport Data Sheet (700-8635)
- VS Data Communications Data Sheet (800-2107-03)
- VS SNA Emulation Data Sheet (800-2307-01)
- Wang Systems Networking Overview Data Sheet (700-8625)

WANG SYSTEMS NETWORKING X.25 TRANSPORT ANNOUNCED

by Networking Product Marketing

DESCRIPTION

Wang Laboratories has announced the X.25 Transport for Wang VS, OIS, Alliance, 2200, and Professional Computer systems as part of the Wang Systems Networking (WSN) communications framework. This article discusses X.25 Transport as it pertains to the VS, 2200, and Wang PC product lines.

The Wang Systems Networking X.25 Transport provides for a full-duplex communications path between Wang systems over public packet-switched networks that support the Consultative Committee for International Telegraphy and Telephony (CCITT) X.25 standard. The CCITT X.25 standard defines the interface between a user's data terminal equipment (DTE), which can be a terminal, computer, or other electronic device, and X.25 data circuit terminating equipment (DCE), which is simply the physical port into the X.25 network.

By using the X.25 Transport interface, a Wang system can access an X.25 DCE through a dedicated leased line. The Wang system can then use the X.25 packet-switched network as a low-cost alternative to either a dedicated or switched line. Depending on the desired transmission speed, data rates of 1200 to 19,200 bits per second can be supported between the Wang system and the X.25 DCE.

The Wang X.25 Transport interface into an X.25 packet-switched network using bit-oriented, high-level data link control (HDLC) and industry-standard Link Access Procedure-Balanced (LAP-B) protocols for network access. Data is divided into packets and numbered by the transmitting Wang system. The packets are carried between the communicating systems by the network, and then put back in sequence by the receiving Wang system.

When two Wang systems communicate through the X.25 network, they establish a logical or virtual circuit. Wang systems can support multiple concurrent virtual circuits per communications line controller: a VS supports up to 24 virtual circuits; 2200 systems support seven; and the Wang PC can support two. This enables Wang systems to establish multiple communications sessions with other Wang systems and to communicate with more than one Wang system simultaneously.

The X.25 Transport uses the same configuration utilities and menu interfaces designed for other WSN transports. End-to-end communications depend on higher-level WSN service and application software being installed on each Wang system. Refer to the WSN Overview Data Sheet (700-8625) and the article on pages 112-119 for more information.

(continued)

WANG SYSTEMS NETWORKING X.25 TRANSPORT ANNOUNCED (continued)

System Requirements

For a Wang system to access the X.25 network, it must be equipped with the appropriate Wang communications controller, as shown in Table 1. A communications controller with an RS-232C/V.24 interface must be installed for each active X.25 link. A dedicated leased line is required from the Wang system to the X.25 DCE, or port of the X.25 network. To run higher-level Wang Systems Networking services, additional WSN services software must also be ordered and installed (see pages 112-119).

Table 1. Wang X.25 Hardware Requirements

System	X.25 Transport Software	Communications Controller
All VS Systems	VS-WSNT-X25	VS-TC1*
2200 MVP	2200-WSNT-X25-3	2228D-8E
2200 LVP	2200-WSNT-X25-5	2228D-8E
2200 SVP	2200-WSNT-X25-5	OP28D-8E
Wang PC	PC-WSNT-X25	PC-PM040

* The VS-TC1 (128K) must be installed in a VS-6554 external chassis. One chassis can contain up to four VS-TC1s. Each VS-TC1 requires a separate VS-FP6554 Front Panel Assembly and a separate TCP-RS-232 Rear Panel Modem Connector.

To operate over a given public packet-switched X.25 network, Wang systems must be certified by the network. In general, certification is not a lengthy process and in many cases certification on one network can quickly lead to certification on others. Wang systems will first be certified to operate over the Tymnet, Telenet, and Datex-P (German) networks. As the X.25 Transport becomes available on these first three networks, certification will be expanded to numerous other public X.25 packet networks.

MARKETING STRATEGY

The availability of an X.25 Transport allows Wang systems to use the benefits of X.25 packet-switched networks, broadening the range of Wang's networking offerings. The Federal Communications Commission (FCC) has currently authorized five public packet-switching networks for operation in the U.S.: Telenet, Tymnet, Cylix, Uninet, and AT&T's Net/1000. Also, in 1983, X.25 packet-switched service existed in more than 30 countries worldwide.

(continued)

WANG SYSTEMS NETWORKING X.25 TRANSPORT ANNOUNCED (continued)

X.25 networks can be a cost-effective alternative to both dedicated leased lines and dial-up lines. Since the cost of using an X.25 network closely reflects the volume of traffic sent over the network, an X.25 network can be less expensive than a dedicated leased line for the data volumes of most average network users. It can also be less expensive than dial-up lines for data volumes that exceed the normal capacity of a dial-up call. An X.25 network can also be cost-effective for users who need to communicate among a large number of locations and who would otherwise have to make a significant network investment.

In addition to potential cost advantages, the value-added nature of X.25 networks can make network management and set-up much easier. Some of the value-added benefits of an X.25 network are:

- Reliable service - X.25 packet-switched networks in most cases are designed to have at least two alternate paths between any two systems on the network. If a line outage or heavy use of the line occurs, traffic is routed through an alternate path. Reliability is also increased by the network control and fault isolation equipment built into X.25 networks.

- Low transmission-error rates - Most X.25 packet-switched networks guarantee extremely low error rates. This meets the needs of data communications users who require higher-quality transmission than is generally available with the public "dial-up" telephone network.

- Variety of transmission speeds - A wide range of available transmission speeds is offered to the user by X.25 public packet-switched networks.

- Easy modification of communications requirements - Changes in user requirements, such as modification of data rates, are handled by the X.25 network, not by the user. Most changes are routine and can be handled in an expeditious manner by the X.25 network.

- Service to widespread locations - Most X.25 networks provide local access to a large number of locations. In addition, gateway connections between many X.25 networks are available, thereby increasing the accessibility of systems and locations worldwide.

The availability of an X.25 Transport broadens the range of Wang's networking offerings with the potential for higher throughput, increased reliability, and lower overall transmission costs.

(continued)

WANG SYSTEMS NETWORKING X.25 TRANSPORT ANNOUNCED (continued)

It should not be assumed that because two devices are X.25 compatible, they can communicate with each other in any useful way. The X.25 standard defines only the lowest layers of the communications architecture necessary for full user-to-user interface over a data network. As part of Wang Systems Networking, Wang provides a set of higher-level services which, in conjunction with the X.25 interface software, allows useful Wang-to-Wang communications to take place over an X.25 network (see pages 112-119).

ORDERING INFORMATION

For X.25 hardware and software pre-requisites, see the system requirements listed on pages 117-118 and page 125. X.25 Transport will be supported on the VS 25, 45, 50, 80, 85, 90, 100, the Wang Professional Computer, and the 2200 LVP, SVP, and MVP. Orders may be placed through normal order processing channels, using the following model numbers:

Model #	Anticipated Availability	Description	Initial Lic.Fee	Monthly Lic.Fee
VS-WSNT-X25-x*	Q2,FY'84	VS X.25 Transport	$1,500	$ 13
2200-WSNT-X25-3	Q3,FY'84	MVP X.25 Transport	500	N/A
2200-WSNT-X25-5	Q3,FY'84	SVP/LVP X.25 Transport	500	N/A
PC-WSNT-X25	Q3,FY'84	PC X.25 Transport	250	N/A

* x specifies media type, where:
3 = single-sided single density (SSSD) diskettes
5 = dual-sided double-density (DSDD) diskettes
(Wang PC software is distributed on DSDD mini-diskettes.)

For more information about the Wang X.25 Transport and its use with Wang Systems Networking services and applications, refer to the following publications:

X.25 Transport System Data Sheet (700-8627)
WSN Overview Data Sheet (700-8625)
WSN File Transfer Service Data Sheet (700-8624)
WSN VS Terminal Emulation Service Data Sheet (700-8644)
WSN VS Virtual Terminal Interface Service Data Sheet (700-8667)

CUMULATIVE INDEX

(continued)

CUMULATIVE INDEX (continued)

(continued)

CUMULATIVE INDEX (continued)

(continued)

ISO PROSPECT REPORT & LABEL ORDER FORM

To order either reports or labels based on the National Business List yellow pages data base, complete and return this form. If you have questions, call Anne Hills at 617-459-5000 x.5598 or Lori-Ann Russell at 617-459-5000 x.2049.

If the desired territory is defined by ZIP code, please provide the 5-digit ZIP codes in Section A. Ranges of ZIP codes(e.g. 02101 to 02199) or individual ZIP codes may be used. If the territory includes an entire county or state, or is solely defined by county and/or state, please complete either the county or state information in Section B. Please note that either section A or section B must be filled in or both may be filled in if you cover ZIP code segments in addition to entire counties or states.

SECTION A

Zip Code		Zip Code
_____	TO	_____
_____	TO	_____
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SECTION B

County Name	State
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Mail Reports/Labels to:

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Name

_____
Company

_____
Street Address

_____
City, State and ZIP Code

_____
Telephone

_____
Wang ISO Account Rep. (signature)

_____
Date

_____
Wang Branch Manager (signature)

_____
Date

(over)

SECTION C

The following vertical market(s) is/are to be included _____ or excluded _____ from the desired territory.

C1 If you are only interested in certain SIC codes in the territory, please place an "X" on the appropriate line. If you are only interested in a sub-segment of a SIC, complete section C2.

X Medical	X Utility	X Banks
_____ Constr/Mining	X Distribution	X Hospitals
_____ Legal	X Retail	X Transporation
X Government	_____ Services	X Insurance
_____ Membership	_____ Education	_____ Agriculture
X Communications	_____ Miscellaneous	X Manufacturing

C2 If only a sub-segment of a SIC is desired, complete the desired SIC codes left-justified.

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Please place an "X" on the appropriate lines:

_____ Prospect Report
_____ Mailing Support

_____ Gummed 1 1/2" X 4"
_____ Cheshire 1 1/8" X 3 5/8"

_____ Sort by: _____ ZIP, _____ Name, _____ State, _____ SIC

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