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## DECUS/DEXPO Fall 1985

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The 1985 fall DECUS symposium will be held December 9-13 at the Disneyland Hotel in Anaheim, California. The following sessions will be presented that may be of particular interest to TSX-Plus users:

Mon. Dec. 9 7:30pm—RT-11/TSX Experiment  
Development  
Mon. Dec. 9 8:30pm—TSX-Plus Real-Time  
Wed. Dec. 11 6:00pm—TSX-Plus Lab Update  
Thur. Dec. 12 9:00am—TSX-Plus I/O Considerations\*  
Thur. Dec. 12 10:00am—TSX-Plus Magic  
Fri. Dec. 13 10:00am—TSXNET V4.0

\*Jan Bramlet of S&H will discuss the system actions between a program issuing an I/O request and entry to the device handler, and again between release of the request by the handler and return to the user program. Topics will include the structure of extended I/O queue elements, fork prioritization, device handlers, system buffering, and data caching.

The DEXPO exposition will be held at the Anaheim Convention Center, December 11-13, 9:30am to 5:30pm. Representatives from S&H will be in booth 412, near the main entrance.

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## TSX-Plus Version 6.0 to be Released November 18

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The low-memory portion of TSX-Plus has been reorganized to reduce the amount of space used by the system and for each job. The restriction of 30 jobs has been removed. The number of jobs which may be supported is now limited only by the amount of space available in low-memory for job dependent tables.

The 6 Kb memory size limitation on the record locking tables has been removed. There is now no inherent limit on the number of shared files or shared file channels that can be generated into the system.

TSX-Plus now offers a full-screen process windowing system that allows the system to remember the contents of the terminal display and to redisplay windows as you switch between subprocesses. This also provides a print screen function for each terminal without requiring a printer to be attached to every terminal. Output can be directed to any system printer or to a disk file.

Support is now provided for the quad serial line multiplexer on the Professional-350/380 personal computers. By use of this hardware option, TSX-Plus can support four time-sharing lines in addition to the console, printer port, and communications port.

The maximum number of CL units (communication lines) has been increased from 8 to 16. The SET CLn ENDPAGE command specifies the number of form-feed characters, and the SET CLn ENDSTRING command specifies a character string to be appended to an output file when a CL channel is closed.

A major revision has been made to the job privilege structure in TSX-Plus. The previous system which had only two classes

of users, normal and privileged, has been replaced by a set of 28 privileges which may be individually enabled or disabled.

Programs may now be "installed" in the system to allow special attributes and privileges to be invoked when the program is run. Attributes and privileges specified for installed programs take effect when the program is started. When the program exits, the program attributes are cleared and the privileges are reset to the set privileges. The /PRIVILEGE qualifier may be used with installed programs to temporarily grant or deny any privilege, including privileges for which the job is not authorized.

The SET PROCESS keyboard command can be used to alter job privileges and priorities. It can be used to suspend and resume execution of a job, and to specify a new user name for the job.

The TSAUTH program has a MODIFY command that allows account parameters to be changed without having to reauthorize the account.

A new optional system password facility has been added to provide additional security for dial-up lines. This forces the user to provide a password before displaying the logon greeting which identifies the site and the nature of the system.

It is now possible to specify character strings which will be substituted when a defined key is typed. This feature may be used to associate frequently typed commands with some of the terminal function keys.

It is now possible to cross connect a time-sharing line with a CL line and become a terminal for another computer. This is similar to using VTCOM except that there is less system overhead, and there is no file transfer capability.

You may now specify the keywords ALL, OPERATOR or PARENT with the SEND command in lieu of specifying a line number.

Subprocesses (virtual lines) and detached jobs now "inherit" the following information from the primary process: privileges, priorities, ASSIGNments, MOUNTed disks, and much more. The logon start-up command file is no longer executed when a subprocess is started, but a separate subprocess start-up command file may be specified.

The DETACH command now accepts up to 80 characters of information to be passed to the detached job, similar to the method used for command files.

A new EMT has been implemented to allow one job to acquire the file context of another job. RTSORT version 2.0 can use this feature when running in message communication mode to allow it to sort files on logical disks and using logical device names.

The SUSPEND command suspends the execution of a job, the RESUME command resumes execution of a suspended job.

TSXMOD is a patching utility which allows re-configuration of TSX-Plus without performing a system generation.

If a system crash occurs, the system can print a dump of internal information about the status of the system. This is useful to S&H in helping you to diagnose system difficulties.

A new sysgen parameter "SWPSLT" has been added which allows you to control the size of the job swap file.

TSX-Plus now supports named PLAS memory regions and local named regions.

It is now possible to establish a completion routine which will be executed as each character is received from the terminal.

It is now possible to use the .TTOUTR EMT to transmit characters to the terminal with the carry-flag being set on return if the terminal output buffer is full.

## Miscellaneous changes

A SET LD EMPTY command may be used to dismount all logical disks for the current job.

It is now possible to determine if program input is coming from a command file or directly from the terminal.

Device handlers provided on the distribution are RT-11 version 5.02 compatible.

Two DM handlers are now provided, one for standard 18-bit RK06/07 controllers and one with support for the Emulex SC02C and the Dilog DQ215.

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## Process Windowing Facility

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One of the major new features in TSX-Plus version 6.0 is the Process Windowing (tm) facility which allows the system to remember the status of multiple screen displays and to redisplay windows as you switch between processes or on demand by programs.

The process windowing facility also provides a "print window" function which allows you to print the contents of a window on a printer by typing a control character. This provides a print screen function for each terminal without requiring a printer to be attached to every terminal.

When windowing is turned on, the system monitors all characters sent to the terminal and maintains an updated screen image in memory. Terminal attributes such as line width, reverse/normal video, application keypad mode, etc. are saved along with line attributes (double wide, double high), and character attributes. The attributes retained for each character consist of blinking, bold, underlined, reverse video, and character set information (ASCII, U.K. national, DEC supplemental, or graphics). Windowing may be used with VT52, VT100 and VT200 series terminals.

When a window is created, it is set to all blanks. Each time a window is selected as the current window, the screen is cleared and the current contents of the window is displayed.

Each job may have up to 26 windows active at one time. A window is identified by an ID number in the range 1 to 26. Two jobs may have windows with the same ID number without conflict.

There are system service calls (EMT's) which allow a program to create windows, delete windows, and select the current window for the job. However, the simplest way to use a window is by use of the SET WINDOW keyboard command. The form of this command is:

```
SET WINDOW [/ON] [/OFF] [/COLUMNS=n] [/DARK]
           [/LIGHT] [/WIDE] [/NARROW] [/SCROLL[=n]]
```

This command manipulates window number 1.

The SET WINDOW ON command (ON can be omitted)

causes the system to create window number 1 and select it as the current window for the job. If window 1 already exists, it is deleted and a new window 1 is created. Not all options are available with VT52 type terminals.

The options control: the screen width (80 or 132 columns); dark or light background (normal or reverse video); and the number of lines (if any) allowed to scroll off the screen while the terminal is attached to a different subprocess.

The default options are ON, COLUMNS=80, DARK, SCROLL=16. Thus you can turn on window 1 with 80 column mode by simply typing:

```
SET WINDOW
```

The SET WINDOW OFF command deletes all windows for the job.

Any time you switch to a new subprocess and a window is active for the primary process, a window is automatically created for the subprocess—as if a SET WINDOW command had been issued. The subprocess window attributes (width, light or dark, and maximum allowed scroll lines) are copied from the existing window definition for the primary process. Once windowing has been enabled, switching between subprocesses will restore the screen to the state it was in when you left the subprocess to which you are reattaching.

You can refresh the window for the current process without switching to a different process by typing control-W followed by the number that selects your current primary or subprocess. For example, if you are connected to your primary process and wish to have the current window redrawn, type control-W 0.

You can cause the contents of the currently displayed window to be written to a printer by typing control-B (a different control character can be specified in TSGEN). Information provided by the SET PRINTWINDOW command applies only to the job issuing the command. Thus, different jobs can direct their print window output to different print devices.

Before you can use the window print function, you must specify the printer to which the window is to be written. Specify the printer by use of the SET PRINTWINDOW command which has the following form:

```
SET PRINTWINDOW [/DEVICE=ddn] [/TYPE=type]  
                [/LETTER] [/DRAFT] [/[NO]BELL] [/[NO]WIDTH]
```

The options select: the printer device name (e.g. LP, CL0, or even a disk file); special printer types (e.g. LA100 or LN03); letter or draft quality for those types that support different modes; enable a bell to signal that the window has been captured for printing; and control character width spacing on some types.

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## A User's View of Process Windowing

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(This article was contributed by S&H's credit manager, whose viewpoint may be somewhat different from that of a programmer or system manager.)

The print window aspect of process windowing is most definitely a benefit to the automated office. Ask your office, business or credit manager how many times in one day he or she looks up the same information—or makes manual notes with information copied from screen displays. Since most business software packages have screen oriented displays, the print window facility provides the office worker with an easy way to get printed copies for in depth study. And the best thing is that the print window facility allows you to instantly print a copy of anything on the screen without having to make any program changes.

I use the print window function many times during the day to make hardcopy printouts of customer credit account displays. Previously, I had to print a lengthy report or manually copy down the relevant information. This also lets me finish more quickly since the screen display is captured so quickly and I can go on to the next account.

Print windows can also be a useful educational tool. The obvious application is customized user documentation. Print sam-

ple screens to include in your manuals. Beyond this, print windows can be helpful for "hands on training". A new or old user can print copies of new data entry screens for further study at any time during instruction. The lesson can continue and any number of screens can be copied along the way for later review.

Another educational aspect to print windows involves communication between different departments in your business. For example—your marketing or sales manager has just announced that they are considering changing an existing product line. They present their plan and you end up with the unwieldy task of figuring out how to make this work in your existing system. With process windowing, you can sit down together with the sales manager and look at the organization of the existing product file. The sales manager can also get printed copies of individual product records for study—or print a snapshot of a spreadsheet display. This will give the manager a better understanding of the options available. This may save time, money, and untold headaches for all parties concerned.

These are just a few ways that I have found process windowing to be useful. Share this feature with all members of your staff. Everyone will undoubtedly find different uses for this feature.

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## S&H's New Bulletin Board

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Beginning November 18, 1985, we will provide a bulletin board service for our customers. This service will allow you to obtain release notes, patches, and other information, and leave messages for S&H staff concerning technical support and business issues. This service will be accessible by dialing 615-320-5462, using a 300 or 1200 baud modem attached to a video or printing terminal. The XON/XOFF protocol is used for flow control. If you call using a TSX-Plus or RT-11 system using VTCOM, then you may use its logging facility to capture the available information. This service will be available from 9 AM to 5 PM Nashville (Central) time, and other times as the system is available. (If the system is not available, the phone will not be answered).

Once you have connected to the system and entered your license number and terminal type, you will be able to access release notes, bulletins, patches, help information, and may leave messages for S&H staff (Technical Support, Sales or Order Processing). Additional information will be added to the system in the future, such as example programs from the manual.

If you are not a currently licensed and supported customer, you will be unable to access certain subjects, such as release notes and patches. All users will be able to leave messages for various departments at S&H. License information is updated once monthly, so you may not have full access as soon as you expect.

When you connect to the bulletin board, you will be prompted for your license number and terminal type. Additional information may be required to use some features of the bulletin board. If you are leaving a description of a problem, please be concise, consistent with a full description of the problem, configuration and supporting information. Individual messages cannot exceed 100 lines in length. If your message is longer, try to rephrase it. If you absolutely must deposit a longer message, break it into parts of less than 100 lines. Simple editing (whole line replacement) can be done after the message is complete.

If you have suggestions for improvement of this service, please leave a message for the Technical Support department.

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## Response to Our DECNET Survey

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In our Summer 1985 Bulletin we requested from you, our readers, information on your interest in a DECNET compatible product that would run with TSX-Plus. We were curious how

many people were interested, and to what extent. We also requested a list of features in which you might be interested. We received six written responses.

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