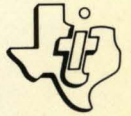


# DS990 Commercial Computer Systems



# TEXAS INSTRUMENTS.



# DS990:

DS990 commercial computer systems are designed to improve productivity and to provide exceptional performance value for software houses, for service bureaus, and for those sophisticated users who are accustomed to developing their own application software. The DS990 combines minicomputer economy with a surprising degree of mainframe-like performance for such commercial applications.

Based on the Model 990/10 Minicomputer and TI's capable DX10 commercial operating system software, DS990 offers a family of disk-based multiuser, multilanguage systems with performance so affordable you'd guess they're from Texas Instruments. With emphasis on system-level design, DS990 systems are noticeably easier to use, to service, to modify and to update.

By utilizing standard hardware options, we can help you configure hundreds of different DS990 systems. These systems readily cope with your current needs and won't let you down as your requirements multiply, because the DS990 itself has a well-defined growth path.

## Models you can choose from.

You can begin with the DS990 Model 4. It's available with either a single- or double-bay desk enclosure and includes a 990/10 minicomputer with 128 kilobytes of error-correcting memory, a Model 911 video display terminal, one DS10 disk drive with 5 megabytes of fixed and 5 megabytes of removable disk cartridge storage capacity, read-only memory for

system loading and front panel utilities, chassis provisions for system expansion and peripherals, a system software license providing use of DX10 software on disk cartridge, a DX10 linkable module for custom-software generation, complete programming manuals, a year's software update service and complete installation of all equipment and DX10 software.

If you require greater disk pack capacity, you can choose the Model 6 system with a 50-megabyte capacity, or the Model 8 with 100-megabyte capacity.

The broad range of options includes additional memory and disk drives, Model 810 multicopy printers, high-speed line printers, 3780 communications packages, magnetic tape transports, *Silent 700\** data terminals, card readers, and floppy disk drives, to name a few. Your software support options are equally impressive, including COBOL, RPG II, BASIC, Business BASIC, FORTRAN IV, Pascal and Sort/Merge packages.

Whatever your choice, the DS990 comes as a complete packaged system. Every unit is built, tested, shipped and installed as a system. The factory executes complete system debugging and systems generation to minimize installation time at your location. All hardware is shipped completely assembled and mounted in the appropriate enclosure; again, to minimize set-up time. When your DS990 arrives you can be sure it already has proven itself worthy of your operators' skills. And our installation includes the system software. When you take final delivery of a DS990, the system is ready to deliver.

## Support you can count on.

To help you get the most out of your computer investment, TI's after-the-sale support includes software updates for a full year at no additional charge, and a computer-aided field service network that many of our customers tell us is the most responsive in the industry.

# It makes commercial computing more affordable.

TI also operates a no-charge customer support line that brings a select group of senior TI systems engineers and analysts as close to your problems as the nearest telephone. Because this group operates from TI's Computer Systems Technology Center in Austin, Texas, it can apply very substantial hardware and software engineering resources to any unusual problem you might encounter.

But chances are, the only technical or maintenance support you'll need is available locally from a factory-trained TI field analyst or customer engineer. And, to help keep your system out of trouble in the first place, TI offers extensive classroom training in both the operation and service of all our equipment.

## Prices you can bank on.

Once you know more about the DS990, we hope you'll compare prices. Be prepared for a pleasant surprise. Not only are these systems attractively priced, they're available under several rent/lease/or buy programs. If you wish, for example, you can get started by using a trial rental plan before

you decide to lease or buy. Our quantity purchase agreements make significant discounts available to both end user and OEM customers. And once your software development programs are complete, you can gain additional savings by purchasing systems on a hardware-only basis, thus eliminating all software and installation charges. Whatever your needs, a TI Field Sales Engineer will work closely with you to develop a financial package that assures you the lowest possible total cost of ownership.

So size us up. Evaluate the DS990 on all four essential computing functions: memory management, program management, file management and high-level programming languages. Compare productivity. Compare prices. We think you'll discover the DS990 offers more technology for less money than competitive systems.





# DX10: It makes commercial computing more productive.

Whether you market a computer service, design software for others, or use it yourself, DS990 can make the job go faster and easier. The reason? Interactive computing power supplied by our DX10 operating system. Its extraordinary prompting capabilities rewards experienced operators with shortcuts and is forgiving of the inexperienced.

DX10 is a disk-based general-purpose, multitasking, multiterminal operating system for a wide range of commercial applications. It supports terminals in either batch or interactive modes.

In its interactive mode, DX10 guides operators to the data they require, step by step, utilizing video displays that minimize the tedious and time-consuming chore of referring to software manuals. Remove the tedium and watch productivity grow!

DX10 features:

- Unusually competent memory management. It includes dynamic memory allocation, priority-driven roll-out/roll-in, and extensive overlay capabilities.

- Program management with concurrent foreground and background program execution and a user-defined priority task environment.
- File management with a choice of sequential, relative record or multikey index files, and it supports the most familiar high-level languages: COBOL, RPG II, BASIC, Business BASIC, FORTRAN IV, and Pascal. Its comprehensive Sort/Merge package complements the power of these languages.
- An extremely broad range of utilities and supporting routines *built in*, custom system generation capabilities, and four powerful interactive program development tools at no extra cost: a text editor, macro assembler, link editor, and a symbolic de-bugging package for assembly language tasks.

Competent memory management, program management, file management, high-level languages and utilities — and they're all tied together by TI's unique System Command Interpreter, perhaps the most extensive and versatile minicomputer job control tool available today. It adds up to the kind of value you've come to expect from Texas Instruments. And a boost for productivity.





# Program and Memory Management

DX10 is a multi-tasking operating system. User programs that operate under control of DX10 include a composite of data, procedures, and overlays. Programs are installed and stored in program files. When a program is activated, its images are loaded into *any* available memory areas.

An active program may be rolled in and out of *several different locations* in memory by DX10 several times during its execution to efficiently share memory and processor resources. When in memory and active, a program competes with other programs for execution time on a user-defined priority basis. When a program terminates, DX10 releases all program-owned resources including files, devices, and memory. This unique DX10 program structure is made possible by the 990/10's hardware memory-mapping technique. These advanced memory and program management techniques provide very high processor utilization with resultant high levels of throughput.

## File Management

The DX10 system file management package includes a complete range of file structures and features. DX10 can accommodate many uniquely named data files on disk media and provides the necessary management for allocation of disk space to the files. The user may specify additional space to be allocated to the file as it is needed, thus eliminating time-consuming restructuring of files.

Three major file types are supported by DX10 —

sequential, relative record, and multikey indexed files.

- Sequential files allow variable-length records with concurrent reads.
- Relative record files provide rapid access to fixed-length records in either random or sequential mode.
- In multikey indexed files, variable-length records are accessed by providing the operating system any one of up to fourteen keys by which the data is known. The keys are in sorted order and allow rapid access to data addressed by the keys. This feature is supported by both assembly and high-level languages.

This feature combined with the optional disk Sort/Merge program provides a form of database management. Other features of the multikey indexed access method include: overlapped keys, duplicate keys, blank or modified keys, and excellent stability during updates due to temporary image logging.

An outstanding feature of DX10 multikey indexing is its unique self-maintenance capability. Deleted or added keys are automatically removed or inserted in the sorted key lists. DX10 automatically expands or contracts the key lists, thus minimizing the need to periodically rebuild and reorganize files.

The various file features and file types are all available to the assembly language programmer. High-level language may or may not allow access to any given feature, depending on the syntax of the particular language. Some of the supported features include: delete and write protection, record locking, blocked files, deferred or immediate write operation, temporary files, and blank compression.

## SCI Command Index

AA	Add Alias	* CL	Copy Lines	* FS	Find String	LTS	List Terminal Status
* AB	Assign Breakpoint	CM	Create Message	* FW	Find Word	LUI	List User ID's
AF	Append File	CSF	Create System Files	HO	Halt Output at device	MAD	Modify Absolute Diskette
AGL	Assign Global Luno	CSK	Copy Sequential to Key	HT	Halt Task	MADU	Modify Allocable Diskette Unit
AL	Assign Luno	CSM	Copy Sequential Media	IBMUTL	IBM Conversion Utility		
ALGS	Assemble and Link Generated System	DA	Delete Alias from pathname	IDT	Initialize Date and Time	MD	Map Diskette
AS	Assign Synonym	DB	Delete Breakpoint	* IF	Insert File	MFN	Modify File pathName
* ASB	Assign Simulated Breakpoint	* DCOPY	Diskette Copy/Restore Utility	IGS	Install Generated System	MFP	Modify File Protection
AT	Activate Task	DD	Delete Directory	INV	Initialize New Volume	* MIR	Modify Internal Registers
AUI	Assign User ID	DF	Delete File	IO	Install Overlay	MKF	Map Key Index Files
** BATCH	Begin Batch Execution	* DL	Delete Lines	IP	Install Procedure	* ML	Move Lines
BD	Backup Directory	DO	Delete Overlay	* IS	Initialize the System	MLP	Modify Luno Protection
BL	Backspace Luno	* DP	Delete Procedure	ISL	Initialize System Log	* MM	Modify Memory
CC	Copy/Concatenate	* DPB	Delete and Proceed From Breakpoint	ISO	Install System Overlay	* MOE	Modify Overlay Entry
CD	Copy Directory	* DS	Delete String	IT	Install Task	* MPE	Modify Procedure Entry
CF	Create File	* DSB	Delete Simulated Breakpoint	IV	Install Volume	MPF	Map Program File
CFDIR	Create Directory File	DT	Delete Task	* KBT	Kill Background Task	* MPI	Modify Program Image
CFIMG	Create Image File	DUI	Delete User ID	** KEY	CFKEY Key Specification	* MRF	Modify Roll
CFKEY	Create Key Index File	* DXTX	DX10 File to Diskette File	KO	Kill Output at a device	* MRM	Modify Relative to File
CFPRO	Create Program File	** EBATCH	End Batch Execution	KT	Kill Task	* MS	Modify Right Margin
CFREL	Create Relative Record File	** ENDKEY	End CFKEY Specification	* LB	List Breakpoints	* MT	Modify Tab settings
CFSEQ	Create Sequential File	* FB	Find Byte	LC	List Commands	* MTE	Modify Task Entry
CKS	Copy KIF to Sequential File	FL	Forward space Luno	LD	List Directory	MTS	Modify Terminal Status
				LLR	List Logical Record	MUI	Modify User ID
				LM	List Memory	MVI	Modify Volume Information
				LS	List Synonyms		
				* LSB	List Simulated Breakpoints		



# High-level Languages

COBOL, RPG II, BASIC, Business BASIC, FORTRAN, and Pascal packages are available as options on all DS990 systems.

The COBOL compiler conforms to the ANSI COBOL subset as defined in ANSI document ED 1X3, 23-1974, and incorporates extensions for added capabilities.

The RPG II compiler conforms to the IBM RPG II specifications with certain equipment and teleprocessing exceptions. The TI RPG II is video display-oriented and provides one-line-at-a-time forms screens or multiline listings.

The BASIC language is an extended version of Dartmouth BASIC as described in BASIC Programming, by Kemmeny and Kurtz, with certain extensions to enhance its use. The extensions are integer arithmetic type, expanded string handling, call, and subprograms.

DX10 standard BASIC is for the scientific user, whereas Business BASIC is an easily understood, business-oriented, application-solving language. Single-key index file I/O and limited-output editing capability are included to provide check-printing capability.

The FORTRAN compiler conforms to the ANSI standard FORTRAN, or FORTRAN IV. The compiler also incorporates the extensions recommended by the Instrument Society of America in their documents ISA-S-61.1, 1975; and ISA-61.2, 1976.

Pascal is a block-oriented procedural language that is particularly useful for systems

programming because of its bit manipulation capabilities, recursive routines, self-documenting structure and efficient compilation and execution.

DX10 supports a comprehensive Sort/Merge package that may be accessed in several ways. SCI provides commands to access Sort/Merge in batch or interactive mode. COBOL, RPG II, FORTRAN, and BASIC programs may interface to Sort/Merge by using the CALL statement. Both sort and merge processes support record selection, reformatting on input, and summarizing on output. Ascending key order, descending key order, or an alternate collating sequence may be specified.

# Communications

The DX10 3780 Emulator software provides a means of remote job entry communications to computers employing the IBM 3780 protocol. This includes IBM host systems, another DS990, the floppy-disk-based FS990 system, or TI's Series 700 Distributed Processing Systems.

DS990 systems so equipped may operate in unattended mode as central or satellite stations in a distributed network. Optional auto-call capability is also provided.

Data files are transmitted over leased point-to-point or switched telephone lines at speeds up to 9600 baud. Any file or system device may be specified to transmit or receive data. Hardware-support of 3780 emulation is provided with the TI 990 Communications Interface Module to a customer-supplied modem or TI-supplied modem kit with optional auto-call unit.

* MWR	Modify Workspace Registers	* SOS	Show Output Status	* XBSM	Execute Batch Sort Merge	XRPGC	Execute RPG Compiler
* PB	Proceed from Breakpoint	* SP	Show Panel	* XCC	Execute COBOL Compiler	XRPGCF	Execute RPG Compiler in Foreground
PF	Print File	* SPI	Show Program Image	* XCCF	Execute COBOL Compiler Foreground	XRPGT	Execute RPG Task
PGS.	Patch Generated System	* SRF	Show Relative to File	* XCP	Execute COBOL Program	XRPGTF	Execute RPG Task in Foreground
Q	Quit SCI	* ST	Simulate Task	* XCPF	Execute COBOL Program in Foreground	* XSB	Execute Scientific BASIC
* QD	Quit Debug mode	* STI	Show Terminal Information	* XCT	Execute COBOL Task	* XSM	Execute Sort Merge
* QE	Quit text Editor	* STS	Show Task Status	* XCTF	Execute COBOL Task in Foreground	* XSMF	Execute Sort Merge in Foreground
RAL	Release All Lunos	* SV	Show Value	* XCU	Execute 2.2 to 3.0 DX10 Conversion	XT	Execute Task
RD	Restore Directory	* SVS	Show Volume Status	* XD	Initiate Debug mode	XTS	Execute Task and Suspend SCI
RGL	Release Global Luno	* SWR	Show Workspace Registers	* XE	Initiate text Editor		
RL	Release Luno	* TGS	Test Generated System	* XFC	Execute FORTRAN Compiler		
RO	Resume Output at device	* TXCM	Compress Diskette File	* XFCF	Execute FORTRAN Compiler in Foreground		
* RS	Replace String	* TXCP	Change Diskette File Protect	* XFT	Execute FORTRAN Task		
* RST	Resume Simulated Task			* XFTF	Execute FORTRAN Task in Foreground		
* RT	Resume Task	* TXDF	Delete Diskette File	* XGEN	Execute GEN990—Auto Sysgen Program		
RWL	ReWind Luno	* TXDX	Diskette File to DX10 File	XHT	Execute and Halt Task		
SAD	Show Absolute Diskette	* TXFD	Format Diskette	XLE	Execute Linkage Editor		
SADU	Show Allocable Diskette Unit	* TXMD	Map Diskette	XMA	Execute Macro Assembler		
		* TXSF	Set system File	XRPGB	Bind RPG Program		
* SBS	Show Background Status	UV	Unload Volume				
SDT	Show Date and Time	* VB	Verify Backup				
SF	Show File	* VC	Verify Copy				
* SIR	Show Internal Registers	* WAIT	Wait for background				
SIS	Show I/O Status	* XANAL	Analyze DX10 crash file				
* SL	Show Line	* XB	Execute Batch SCI				
SMS	Show Memory Status	* XBB	Execute Business BASIC				

\* = Foreground Only  
\*\* = Batch Only



# System Command Interpreter

The System Command Interpreter (SCI) is a collection of over 170 procedures that provide system functions ranging from setting the time of day, to initiating compiles, to backing up disks.

Once the user becomes familiar with DX10 and the SCI, there is very little reason to look up commands in supporting documentation. The required information is at the user's fingertips via the SCI. Because of this efficiency, savings of development effort on major programs of up to 30 percent can be attained.

Not only is this technique fast, it also provides a strong visual reinforcement of operating procedures that helps train new operators, while minimizing time lost searching through software manuals.

The completeness and flexibility of the functions performed by the SCI are without parallel in the minicomputer market. Many of the functions performed by the SCI are found only on mainframe-class machines.

Activation of SCI commands is via a hierarchy of command menus. Of great importance to many users is the ability to generate custom commands that can be integrated into the framework of DX10. Users can combine SCI primitives with their own application language to provide a user interface that is unique to the terminology and customary procedures of the application.

SCI can be employed in either interactive or batch mode.

The general categories of functions provided by DX10 and initiated by the the SCI include:

- Log in and out
- Time and date setup and inquiry
- Disk volume initialization, install, and unload
- Disk directory backup, restore, and copy
- Synonym support
- File alias name
- Changing file names and protection
- Viewing and listing directories and files
- Copying directories and files
- Logical unit assignment, positioning, and release
- System I/O status display
- System task status display
- Program activation and control
- Batch command input, activation, and status
- Station control (user ID, terminal status, etc)
- Installing and deleting programs
- Activation of the system log
- Program debugging including such items as: breakpoints, memory/disk dump or display, decimal/hex arithmetic aid, and inter-actively controlled program trace
- Text Edit control
- Assembler, COBOL, FORTRAN, BASIC, Business BASIC, Pascal and RPG II compiles and assemblies
- Link Edit activation
- Sort/Merge activation

SELECT ONE OF THE FOLLOWING  
COMMAND GROUPS:

/DEV - DEVICE OPERATIONS  
/FILE - FILE OPERATIONS  
/PDEV - PROGRAM DEVELOPMENT  
/SMAIN - DX10 MAINTENANCE  
/SOP - DX10 OPERATION

DEVICE OPERATIONS

/DISK - DISK COMMANDS  
/DVICE - DEVICES  
/STAT - STATUS COMMANDS  
/TERM - TERMINALS

DISK COMMANDS

DCOPY - DISK COPY/RESTORE  
UTILITY  
INV - INITIALIZE NEW VOLUME  
IV - INSTALL VOLUME  
MAD - MODIFY ABSOLUTE DISK  
MADU - MODIFY ALLOCATABLE  
DISK UNIT  
MD - MAP DISK  
MVI - MODIFY VOLUME INFORMATION  
SAD - SHOW ABSOLUTE DISK  
SADU - SHOW ALLOCATABLE  
DISK UNIT

INV

INITIALIZE NEW VOLUME  
UNIT NAME: <name> @  
VOLUME NAME: <name> @  
NUMBER OF VCATALOG  
ENTRIES: <int>  
BAD TRACK  
ACCESS NAME: <acnm> @

Utilizing a hierarchy of "menus", the DX10 System Command Interpreter can quickly lead DS990 operators to the precise data they require. In this example, an operator enters /DEV to view Device Operations, keys in /DISK to view Disk Commands, then enters INV to view the procedure for initializing a new volume. Moreover, an experienced operator could key directly to INV, thus saving additional time and effort.



# DS990: It makes commercial computing more versatile.

DS990 standard configurations provide three basic systems:

**Model 4** — Small software development system or medium-scale application system using 10M bytes of disk storage.

**Model 6** — Dual 25M-byte disk-based system suitable for medium-scale software development and application systems.

**Model 8** — Dual 50M-byte disk-based system intended for medium- to large-scale software development and application systems.

All models are based on the 128K-byte 990/10 processor. It features the TILINE asynchronous high-speed data bus and incorporates a memory-mapping technique that allows addressing of up to 2048K bytes of main memory. By adding memory options, current DS990 models can provide up to 256K bytes of MOS dynamic RAM error-correcting memory.

All models are housed in a thirteen-slot chassis with a programmer panel. The chassis also includes a 40A power supply and a disk-loader ROM.

All models employ moving-head disk drives with at least one removable disk pack or cartridge and one additional fixed or removable drive. This allows copy, back-up, and transportability of media that is so important in interactive systems.

Model 4 has one DS10 disk drive with five megabytes of fixed and five megabytes of removable cartridge capacity. Model 6 has two DS25 removable disk pack drives for a total capacity of 50 megabytes. Model 8 has two DS50 removable disk pack drives for a total capacity of 100 megabytes.

Each system includes one 1920-character Model 911 Video Display Terminal and keyboard. A dual terminal controller is included to allow direct addition of a second 911. Additional units are available as single or dual terminal displays with included keyboards and interfaces. A maximum of ten 911s can be installed in predefined slots in a two-chassis configuration. Additional units may be installed in other vacant slots by redefining the interrupt assignments, or by using an add-on chassis.

The following options are available as enhancements to DS990 systems. Depending on the mix of options, an additional expansion chassis may be required.

- Additional error-correcting memory, up to a standard DS990 system maximum of 256K bytes. A TILINE coupler and a second chassis are required.
- OMNI800\* Model 810 Impact Printer with 9 x 7 dot matrix character font, and optimized bi-directional printing. Prints up to 132 columns at 150 characters-per-second with programmable forms length.
- Models 2230 and 2260 Line Printer. Free standing, 136-column, 300-line-per-minute (Model 2230) or 600-line-per-minute (Model 2260) line printer with vertical format control, internal self-test, static eliminator, and standard ASCII 64-character set.
- Model 979A Magnetic Tape Transport. 800/1600-bpi, phased-encoded, nine-track, 37.5-ips tape transport and controller.
- Additional Model 911 VDTs with 1920-character screens.
- Model 804 Card Reader, reading at 400 cards per minute.
- *Silent 700* data terminals, including the 733 ASR and 743 KSR.
- Floppy-disk support to provide transportable diskette media to smaller members of the 990 family of systems.
- RS-232C communications interface module for asynchronous and synchronous transmission at selectable baud rates from 75 to 9600. Other supporting options include asynchronous and synchronous modems and auto-call.

DS990 Now that you know more about it, we hope you'll want to arrange a demonstration. Just call the TI sales office nearest you (it's listed in the White Pages) or call Computer Systems Marketing at (512) 258-7305. For additional information, write Texas Instruments Incorporated, P. O. Box 1444, M/S 784, Houston, Texas 77001.





The Model 911 Video Display Terminal is a fast, convenient, and economical terminal for operator interaction with 990 computer systems. The 1920-character display is 24 lines by 80 characters consisting of 96-character ASCII with uppercase and lowercase alphabet.

The OMNI 800 Model 810 Impact Printer is a tabletop, 132-column, 150 characters-per-second printer with 9 x 7 dot matrix character font. The Model 810 utilizes adjustable tractor drives, 3 to 15 inches wide, and will accommodate up to six-part multicopy forms. The print cycle provides optimized bi-directional printing, 256 character FIFO buffer, vertical and horizontal tabbing and programmable forms length.

The Model 979A Magnetic Tape Transport is provided in two versions: a 9-track, 800-bpi, NRZI version and a 9-track, 1600-bpi PE version. Tape formats are industry compatible. Model 979A transport features vacuum columns, 37.5 ips and 10½-inch reels with quick release hubs. Model 979A transports may be used for support of sequential files under the DX10 Operating System.

The Model FD800 floppy disks provide 77 tracks, 26 sectors, 128 bytes per sector with a capacity of 256 K bytes per diskette. Adjacent track seek time is 10 milliseconds and average rotational latency is 83 milliseconds. Controller-to-disk transfer rate is 32K bytes per second, with double-sector buffering for both read and write operations. Optional on all systems.

Silent 700 Model 733 Automatic Send-Receive (ASR) Terminal is a full ASCII 30 characters-per-second thermal printing terminal with 1200 baud transmission rate, and twin magnetic tape cassettes providing buffered data transmit/receive, cassette read/write/copy, and off-line edit.

The Models 2230 and 2260 are freestanding, heavy-duty, drum line printers offering, respectively, 300-lines-per-minute and 600-lines-per-minute printing speeds. Print features common to both printers are fully-formed characters (64-character ASCII set), 136-column, adjustable width (5 to 16 inches), sprocket-type multicopy forms print capability (five parts), static eliminator, and tape-controlled 12-channel vertical format unit.



The Model 990/10 Minicomputer is a high-performance minicomputer implemented with TTL MSI circuits on two circuit boards. Model 990/10 features include 128 kilobytes error-correcting memory, on-board real-time clock, integral hardware multiply/divide, power fail/auto restart logic, 16 vectored interrupts, 16 extended operations (XOPs), high-speed TILINE multiuser bus, CRU bus for decoding up to 4096 input lines and 4096 output lines, and interface for operator/programmer panel.

The Model DS10 is a single spindle, fixed and removable platter drive employing the 5440-type disk cartridge. Each platter has a 4.7-Mbyte formatted capacity for a combined drive capacity of 9.4 Mbytes. Single track seek time is 7.5 milliseconds with an average seek time of 35 milliseconds. The transfer rate is 312K bytes per second. This drive is standard with the Model 4 systems and optional on the Models 6 and 8 systems. One DS10 controller can accommodate up to two DS10 drives.

The Model DS25 is a multiplatter disk pack with 22.3 Mbytes of formatted capacity. Single track seek time is 6 milliseconds, maximum seek time is 55 milliseconds, and the average is 30 milliseconds. Average rotational latency time is 8.3 milliseconds. The average transfer rate is 403K bytes per second. Dual DS25s are employed on the Model 6. One DS25 controller can accommodate up to four DS25 drives.

The Model DS50 is a multiplatter disk pack with 44.6 Mbytes of formatted capacity. Single track seek time is 6 milliseconds, maximum seek time is 55 milliseconds, and the average is 30 milliseconds. Average rotational latency time is 8.3 milliseconds. The average transfer rate is 403K bytes per second. Dual DS50s are employed on the Model 8. One DS50 controller can accommodate up to four DS50 drives.



# TEXAS INSTRUMENTS.

## We put computing within everyone's reach.

The key to minicomputer value is not what: but who. Because there's more to a computer system than specifications. There's credentials . . . the intangible "who" that adds up to purchase confidence.

Computers with the Texas Instruments nameplate include a heritage of innovations, service and integrity that complements the price/performance leadership long associated with TI.

First and foremost, each TI computer has the strength of TI's semiconductor capabilities. Through the years, TI advances in circuit architecture, device structures and processing technology have made notable contributions to the entire computer industry. You can be sure TI will continue to apply its semiconductor technology to computer systems of the future, as well.

TI has more than two decades of experience in computer systems development. During that period we developed and built specialized systems for industrial, scientific and commercial applications around the world. Our Advanced Scientific Computer is one of the most powerful mainframe computers ever devised. More recently, our minicomputers have been applied to custom systems providing reliable nationwide reservations service, insurance claims processing, and major chain retail/wholesale inventory control and data handling, to name a few.

Today, there are more than 15,000 TI computers installed worldwide.

Finally, to make sure your computer investment starts out small and stays small, TI employs learning-curve pricing for all its products. As we refine our manufacturing skills or design in new cost savings for our computer equipment, we pass it along. You stand to save on the system you buy today, and on the enhancements you add in years to come.

It's good business; but even more, we think it says a lot about the integrity you can expect from Texas Instruments. And that is one more good reason we believe the first thing you need to know about buying any minicomputer system is not what: but who.

We're Texas Instruments. The company that puts computing within everyone's reach.



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