



**RUGGED, RELIABLE, AFFORDABLE
COMPUTERS**



THE COMPANY

For more than ten years, TEI has been a low profile manufacturer of sophisticated electronic products, quietly serving the needs of some of the largest OEM's in America. We have shipped literally hundreds of thousands of systems and products that are in use all over the world today. TEI is vertically integrated—we start with raw materials and fabricate everything we need for the end product right in our own plant. It gives us total control over all our production processes and thus we also have excellent quality control.

This philosophy has been successfully proven in the reliability of our products over the years. We are dedicated to designing and producing products that are timely, useful and reliable. Our overall experience and capability, our innovative technology and creative management and our proven growth and stability provide the assurance that you can depend on us to serve your data processing and computer needs in a professional manner.

Our Special Systems Group presents here a full and comprehensive line of computer systems and products. It is without a doubt the broadest and most flexible product line in the industry today. More is coming, but we pledge that we will maintain upward compatibility as we continue to keep the performance of our products at the leading edge of advancing technology.



THE PRODUCTS

Throughout the following pages, you will find powerful and affordable computer systems and components from TEI, a leader in computer systems and mainframes.

Word processing, A/R, A/P, general ledger, payroll, property management, and mailing lists are all easily programmed using the extensive system software available from TEI. You will appreciate the power and flexibility of mature high level languages such as Super-Basic, ANSI Fortran (extended) and ANSI Cobol.

The Processor Terminal series in particular provides complete and thoroughly integrated stand-alone desk-top computing, implemented in rugged designs well suited to professional daily use by business, science, and industry.

Any business that can afford the price of an automobile can no longer afford to ignore the benefits of having the same kind of data processing so long enjoyed by the large corporations. In hundreds of installations, TEI computer systems and products have already paid for themselves and are now returning profits to their owners. They are being used by doctors, lawyers, engineers, pharmacists, researchers, country clubs, businesses and individuals.

We think you should carefully evaluate the TEI computer line and see for yourself the many advantages. We have a strong dealer program and probably have a dealer near you.



PT 112



PT 412



PT 312



THE PROCESSOR TERMINALS

Processor terminals offer everything needed for data processing. Adding a printer allows generation of reports, audit trails and aids in development of programs. The design of the PT's is rugged, reliable and offers such features as direct access video; a full, detachable keyboard with 16 key numeric pad; an IBM compatible disk format, and mature system software. Random access memory is easily expandable and the permanent mass storage is easily expanded to accommodate most any data storage requirement.

PT112

An ideal unit for any application that requires a mass storage capability. Stores more than 80K on a Shugart SA400 drive. There are six unused card slots for additional memory or function cards. A popular use is word processing and mailing lists.

PT212

If you know you need more storage, start with two Shugart SA800 disk drives. 512K gives you room for programs and files. Excellent machine for the small business system. Character display is 24 x 80 and you can have reverse video, protected fields, blinking or block cursor and many other patchable features.

PT312

We know your applications and requirements will grow... so we will grow with you. Add our popular DFD 80 to a PT112 and you now have the space to do the new requirement. TEI DOS allows you to run mixed (mini & standard) drives* on the same system.

PT412

Need to start with a lot of storage? This unit offers you one megabyte now and can be upgraded to four megabytes if you need it later. This one can handle a lot of inventory.

TEI PUTS IT ALL TOGETHER FOR YOU

* Requires optional floppy disk controller.

NOTE: Standard PT's include CPU, 32K RAM, 2K PROM, PARALLEL & SERIAL I/O, DISK CONTROLLER and 24 x 80 VIDEO.



PT 408



PT 208

PT408

A lot of power in a small package. The green phosphor CRT is easy on the eyes and will display 24 lines of 80 characters. 672K bytes on four diskettes affords flexible handling of programs and data. The standard system comes with 32K of memory, but you can add more memory when required. A serial and a parallel port is available to the user for such things as printers, plotters, modems, etc.

PT208

If you want to tackle one project at a time, you can start here and grow to a PT408 later. Engineers find this unit can give them quicker turn around than a time share system. We can furnish you with a DOS and high level language so that you can write your favorite program and save it on mini diskette. Available high level languages like Fortran & Super-Basic make engineering design problems a breeze.

TVF11/S

Another version in this rugged and reliable family. Designed to be incorporated into a testing or process control station. Three additional slots in the computer card cage allows you to plug in additional I/O cards, memory, A to D, etc. The standard unit is equipped with the following PC boards: CPU, 16K RAM, Floppy Disk Controller, Video Controller and a 3P+3S I/O card. DOS is an available option.

RVF11/S

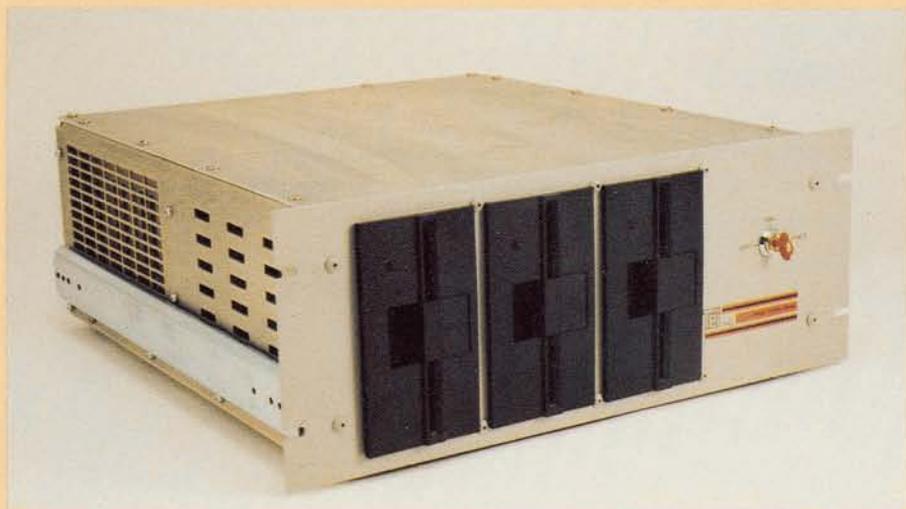
A ruggedized version to fit a RETMA rack. Comes equipped with slides for easy access when mounted. You will find this unit easy to design into a mobile test station that can be moved around the floor, or incorporated into a permanent process control application. Its design conforms to TEI's high standards of industrial quality.



MTS 22



TF 12/S



RF 12/S

TERMINAL SYSTEMS

MTS12 or 22

Our maintenance terminal system comes standard with 32K of memory. The FDC board in the standard system is controlling our DFD 80 with two Shugart SA800 drives, but you add more drives later. The controller can handle anything from an SA400 thru an SA850. It can also handle mixed drives.* Our 3P+3S I/O will let you choose the printer and CRT of your choice. One serial port is programmable for synchronous or asynchronous if you have a communications task. Optional DOS allows for user incorporated I/O drivers for special applications—communications interface, proportional spaced printers, etc.

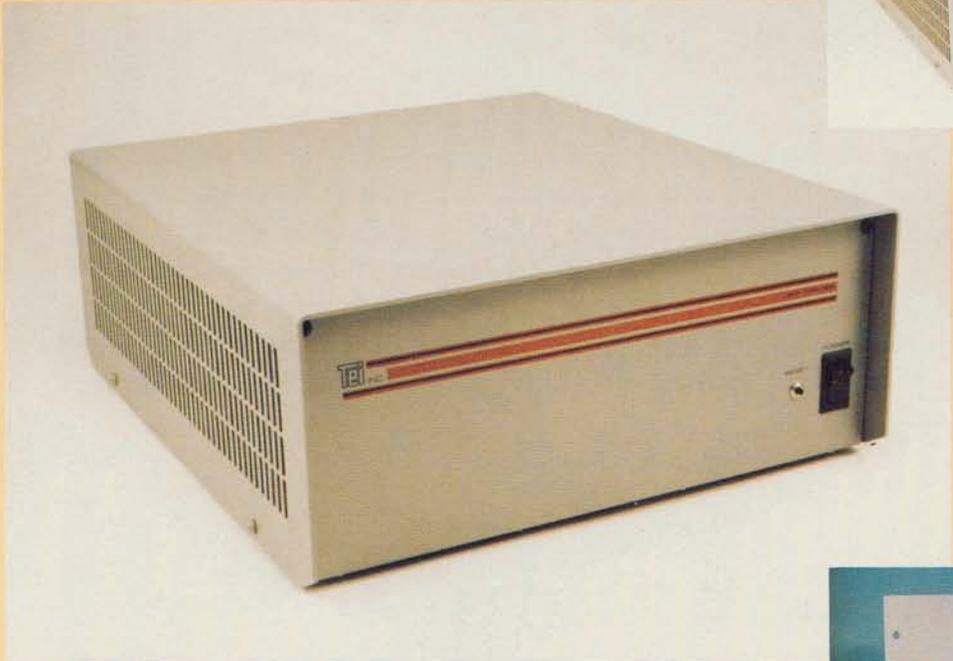
RTS12 or 22

Heavy duty, ruggedized, rack mount version of the above system. Our standard system occupies 5 slots so you can expand the system to fit your needs. All card guides and 100 pin connectors are all in place in these units. Plenty of power from the famous TEI MAINFRAME.

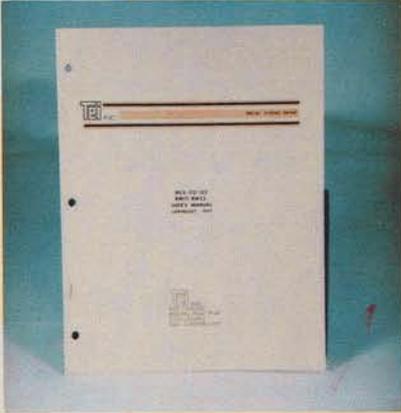
TF 12/S or RF 12/S

Here's a 32K system that can grow with your needs. Five slots are occupied with a CPU, 2-16K RAM, FDC and 3P+3S I/O card. The unit comes with two SA400 drives but you can install another mini or cable connect a DFD-80 or DFD-85 if you need more data storage. TEI's FDC-2 can run a mixed drive system* if you want it to. Plenty of room for more memory, I/O or the S100 board of your choice. Specify TF for table-top or RF for the heavy duty RETMA rack mount version.

* Requires optional FDC.



MCS 122



RM 22

THE MAINFRAMES

MCS112 or 122

"The" computer mainframe. S100 motherboard that is fully shielded, grounded and actively terminated. The heavy duty, precision formed cabinet is vented for efficient thermal characteristics. All card guides and 100 pin connectors are furnished and voltage terminals are screw type to power supply leads. Power is furnished by a TEI CVT famous for its high immunity to input line noise...greater than 100db rejection. Line regulation better than $\pm 1\%$ from an input of 95 to 140 VAC at full load. Handles 85 to 140 VAC at three quarter load. Cooled with muffin fan and protected by a commercial grade washable filter.

SPECIFICATIONS

	MCS 112	MCS 122
Dimensions	17¼ W x 12 D x 7¼ H	17¼ W x 19½ D x 7¼ H
Power \pm 8VDC	17 AMPS	30 AMPS
Power \pm 16VDC	2 AMPS	4 AMPS

RM12 or 22

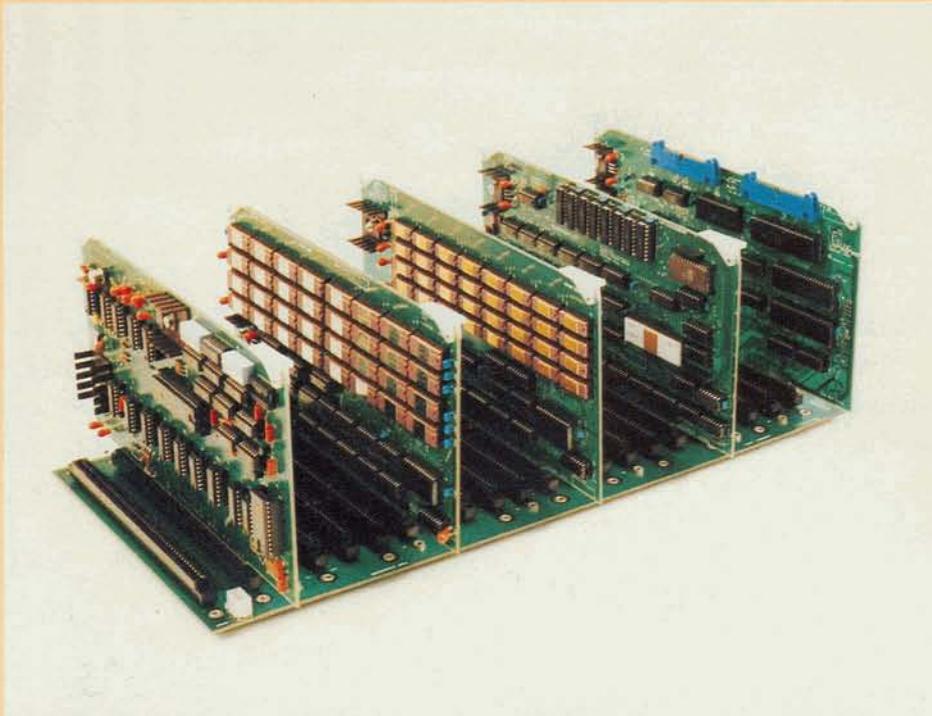
This one may become more popular than the table top version described above. Heavy duty rack mount version designed to fit a RETMA rack. 7½ H x 19 W x 19½ D with slides already installed. Card hold-downs to keep your boards in place plus a protective cover plate will keep your system up under adverse conditions. Conforms to TEI's rigorous industrial quality standards.

TVF11 or RVF11

This is the mainframe of the TVF11/S or RVF11/S described on a previous page. If you have the system, we have the mainframe. Comes equipped with the motherboard, and connectors, the CRT and two Shugart SA400 drives. Take your pick of the table top video floppy or the heavy duty RETMA rack mount video floppy.

TF12 or RF12

Need a mainframe that is already equipped with mass storage capability? Twelve slots on a shielded, grounded and actively terminated motherboard with all the connectors and card guides in place. Powered by a TEI CVT that can handle line noise and brown outs. Your choice of the table top or rack mount will assure you of a winner.



PC BOARDS



DFD 80

CPU BOARD

If you pick the 8080A, it will run at 2MHz on an S100 Bus, high grade epoxy glass, double sided, plated thru holes and solder masked on both sides. "Jump to" any unique address from 0000 to FFFF thru two dip switches when you power on. Card ejectors are standard.

You may choose our Z80 CPU, it comes with DMA and four channels of programmable counter/timer that can be event driven. One channel may be used as a real time clock. DMA affords efficient back-ground transfer of data to and from ports or memory. Optional hardware floating point is built on the board. Complex math as well as add, subtract, multiply and divide. This board is super efficient.

RAM 16 BOARD

Fully static random access memory organized 16K x 8 Bit. Low power consumption and fast access time. Bank select and page select. Phantom line feature is included and can be enabled if the RAM address will be used at the same location as PROM.

3P ● 3S I/O BOARD

A versatile device for your I/O functions. Serial ports consist of two UARTS and one USART. The parallel port can be three eight bit ports, two twelve bit ports or one twenty-four bit port. Baud rates are jumper selectable from 75 to 19,200 Baud. The USART is programmable for synchronous or asynchronous communication.

FDC BOARD

A floppy disk controller that puts them all together. You can run 3 mini drives, eight standard drives or you can mix and match. * Standard IBM format includes two 1K EPROMs in sockets with either software for the PT's or MTS systems—your choice.

VCB BOARD

Runs with either 2 MHz or 4MHz CPU. 24 x 80 display. Patchable options to get what you want. Blinking cursor, block cursor, underline cursor, reverse video or reduced intensity on a character by character basis and many other patchable options.

DFD or RFD MASS STORAGE

This series of drives features a double drive cabinet with a CVT power system to run Shugart SA800 or SA850 drives. Specify DFD if you want the table top or RFD if you require a rack mount. All media is soft sectored for greater data reliability. Upward compatibility from 512K bytes to two megabytes.

TFD or TF12 or RF12 MASS STORAGE

You can choose a stand alone TFD chassis that holds up to three SA400 drives or you can get the mainframe for our TF12/S or RF12/S shown on a previous page. These units are designed to furnish the proper power system and chassis for someone who has already designed a system and wants to put it all together.

* Requires optional FDC.

NOTE: Because TEI maintains an ongoing product improvement program, we reserve the right to change prices and specifications without prior notice.

THE SYSTEM SOFTWARE

DOS

TEI's operating system is a truly efficient, powerful and comprehensive diskette operating system (DOS) called CP/M. It is easy to use, and being machine independent, allows complete model transparency—an operator trained on one TEI computer can instantly operate any other with ease.

CP/M forms the interface between the operator and the computer. Simple commands taken from the user will load requested programs, manage the printer, video display and other peripherals attached to the computer. No complex training is required to master these operator skills.

CP/M also contains a number of pre-written utility programs to perform routinely needed data processing tasks. A general purpose Text Editor is included for creating new programs. The Text Editor contains many powerful commands to ease the manipulation of text. "TYPE" is a utility that allows a file stored on diskette to be displayed on the video display or on the optional printer. "COPY" allows rapid copy of data and programs from one diskette to another for back-up purposes. This insures data integrity in case of error. "FORMAT" allows very rapid initialization of a new diskette prior to using it for data and program storage and assures proper operation of the new diskette. "ERASE" allows rapid erasure of old data on diskette so that it may be used for new data. "STAT" provides video display of free diskette storage space and pertinent details about all files stored on the diskette. "PIP" provides rapid transfer of data files to and from diskettes and peripherals attached to the computer (printer, tape reader, etc.) It also simultaneously performs error checking and reporting to ensure accuracy.

SOFTWARE DEVELOPMENT

CP/M comes complete with assembly language programming features to allow a user to write highly efficient programs in machine language. Its assembler is Intel format compatible. As it assembles a program (written with the Text Editor) it will produce full error messages if an error occurs, allowing efficient interface to the programmer. It also provides for conditional assembly, string constants and other sophisticated aids to the programmer.

DDT is a dynamic debugging tool that allows easy trouble shooting of a program. It provides a full program tracing, display and control over all CPU registers and flags, and in-line assembly and disassembly of machine language programs. It is without doubt one of the most sophisticated debugging tools available anywhere.

HIGH LEVEL LANGUAGES

SUPER-BASIC

TEI Super-Basic language is a high-level programming language specifically designed for interactive computing with the TEI computers. Its simple English-like instructions are easily understood and quickly learned. Its interactive nature allows instant feed back of results and diagnostics.

Despite its operating simplicity, however, Super-Basic is a powerful language for implementing data processing programs. It contains provisions for editing and string processing as well as numerical computation with 16 digit precision, including random and sequential access to data stored on diskettes. Troubleshooting a program is easy with full trace capability and other built-in aids to the programmer.

FORTRAN IV COMPILER

TEI Fortran IV is ANSI standard level II Fortran with extensions. It is comparable to Fortran compilers on large mainframe and mini-computers. All of ANSI standard Fortran X3.9-1966 is included except the COMPLEX data type. Users may take advantage of the many existing application programs already written in Fortran.

Fortran is unique in that it provides a microprocessor FORTRAN and assembly language development package that generates relocatable object modules. This means that only the subroutines and system routines required to run FORTRAN programs are loaded before execution. Subroutines can be placed in a system library so that users develop a common set of subroutines that are used in their programs. Also, if only one module of a program is changed, it is necessary to re-compile only that module.

The standard library of subroutines supplied with FORTRAN includes:

ABS	IABS	DABS	AINT
INT	IDINT	AMOD	MOD
AMAXO	AMAX1	MAXO	MAX1
DMAX1	AMINO	AMIN1	MINO
MIN1	DMIN1	FLOAT	IFIX
SIGN	ISIGN	DSIGN	DIM
IDIM	SNGL	DBLE	EXP
DEXP	ALOG	DLOG	ALOG10
DLOG10	SIN	DSIN	COS
DCOS	TANH	SQRT	DSQRT
ATAN	DATAN	ATAN2	DATAN2
DMOD	PEEK	POKE	INP
OUT			

The library also contains routines for 32-bit and 64-bit floating point addition, subtraction, multiplication, division, etc. These routines are among the fastest available for performing these functions.

```

LSETH3$=MKS$(X);
PUT #1,ENZ(NZ):PRINTO1$:INPUT
OPEN "0",#2,D2$+":EMPNUM":FOR NZ=0T0999:PRINT
RETURN
REM THIS SUBROUTINE UPDATES AND CORRECTS ONE PERSONS PAYROLL RECORD
) PRINTO1$"CORRECTING ONE PERSONNEL RECORD":FZ=0
) INPUT"EMPLOYEE NUMBER OF RECORD TO BE CORRECTED":NZ:IF NZ<10RNZ>999THEN3025 ELSEIF
5 PRINT"EMPLOYEE NUMBER IN ERROR":GOTO3020
0 GET #1,ENZ(NZ)
5 GOSUB 9020
10 PRINT"24 NO MORE CORRECTIONS":INPUT"WHAT TO CORRECT (1-24)":XZ:IFXZ<10RXZ>24THEN30
110 1190,3200,3220,3240,3255,3260,3270,3290,3320
50 ON XZGOTO3100,3
00 PRINT"EMPLOYEE
10 INPUT"CORRECTI
120 PRINT"EMPLOYEE
130 FZ=1:ENZ(XZ)=E
140 PRINT"NAME (LA
150 PRINT"ADDRESS"
160 PRINT"CITY ST
3170 PRINT"ZIP COD
3180 PRINT"SOCIAL
3190 PRINT USING"
3200 PRINT"PAY TY
3210 LSETF8$=X$:G
3220 PRINT"PAY FR
03220
3230 LSETF9$=X$:0
3240 PRINT"MARIT
3250 LSETG1$=X$:
3255 PRINT"DEPEN
3260 PRINT USING
3270 PRINT"DATE
3280 LSETG4$=MK
3290 PRINT"DATE
3300 LSETG5$=MK
3320 PRINT"REHI
3330 LSETG6$=X
3350 PRINT"LAS
3360 LSETG7$=MKS
3370 PRINTUSING"SICK HOURS *****.##";CVS
3380 PRINT USING"YTD EARNINGS *****.##";CVS
3400 PRINT USING"YTD FICA *****.##";CVS(H2$):PRINT:INPUT
3420 PRINT USING"YTD TAX *****.##";CVS(H3$):PRINT:INPUT"CORRECTION":X:LSETH3$=
3440 PRINTUSING"QTR EARNINGS *****.##";CVD(H4$):PRINT:INPUT"CORRECTION":X#;LSI
3460 PRINTUSING"QTR FICA *****.##";CVS(H5$):PRINT:INPUT"CORRECTION":X:LSETH5$=
3480 PRINTUSING"QTR TAX *****.##";CVS(H6$):PRINT:INPUT"CORRECTION":X:LSETH6$=
3900 PRINTO1$:PUT #1,ENZ(NZ):IF FZ=0THEN3930
OPEN "0",#2,D2$+":EMPNUM":FOR NZ=0T0999:PRINT#2,ENZ(NZ):NEXT:CLOSE 2

```



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