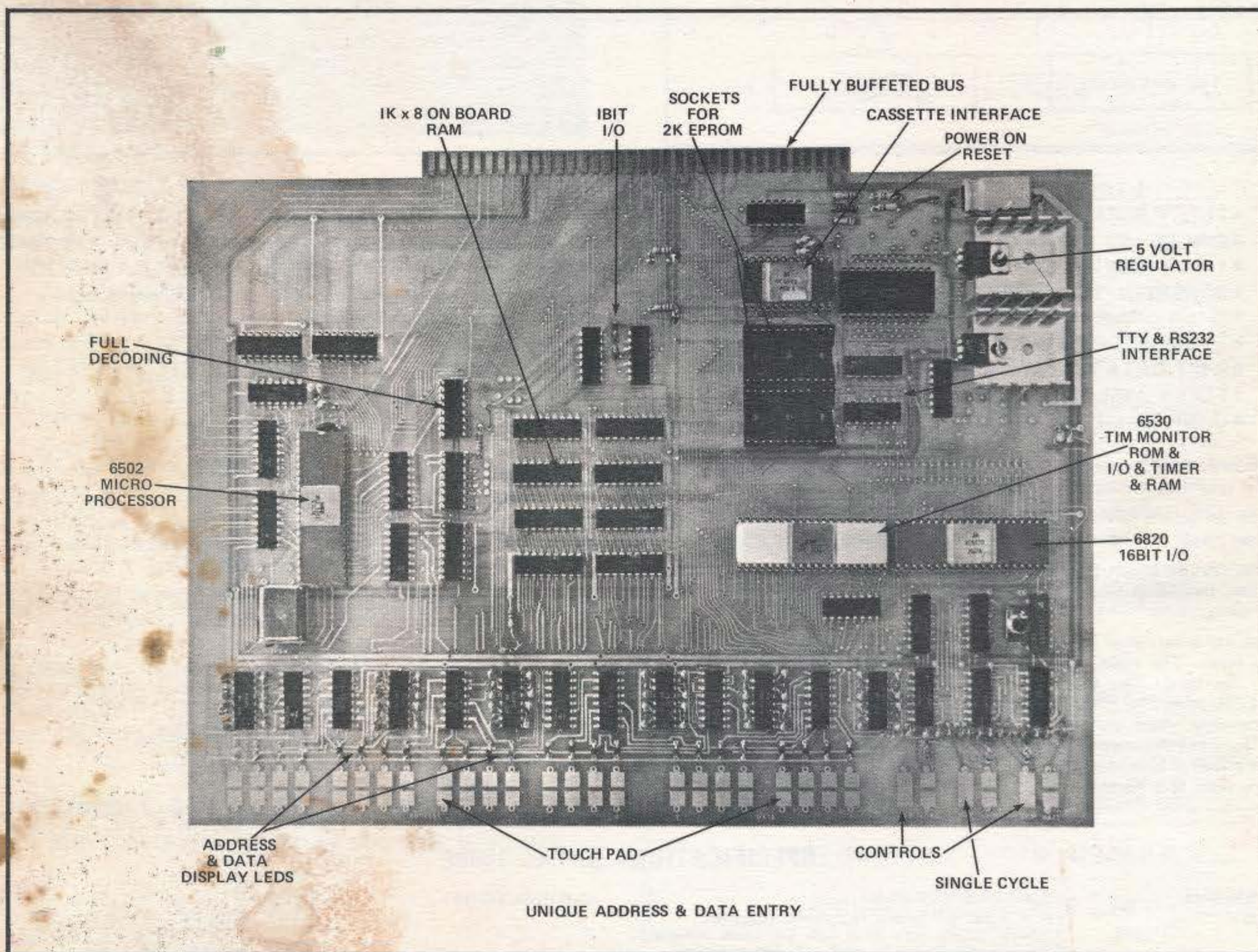


Pce 79

# DATAAC 1000

## TUTORIAL • MICROCOMPUTER • CONTROLLER



### the TUTORIAL BOARD with a FUTURE

The DATAAC 1000 is designed so that a user with no microprocessor experience can open the package, plug in the unit, open the manual and immediately learn by doing.

The fact that it has a built-in "Control Panel" makes the system usable instantly without the expense and effort required to interface a terminal. The built-in "Control Panel" makes use of a unique touch pad switch that makes it both quick and easy to use.

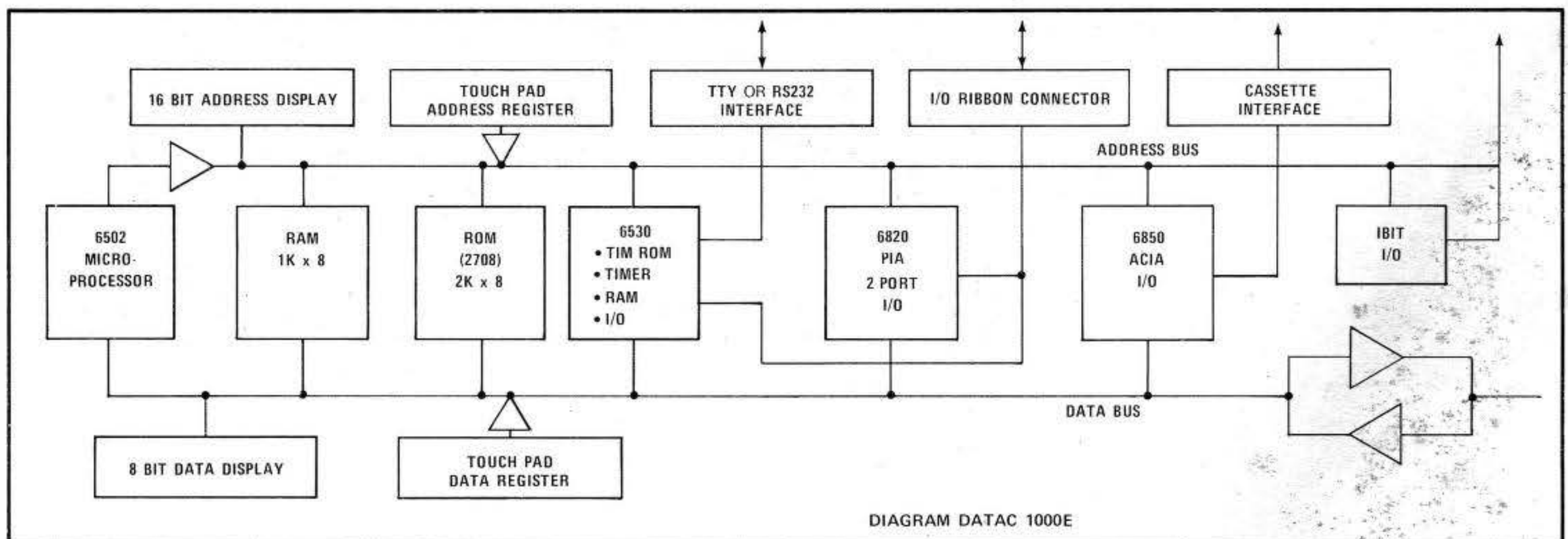
Although it is possible to use the built-in "Control Panel" to develop and enter even non-trivial programs, the time comes when it is desired to interface to a terminal. To make this easy, the DATAAC 1000 provides the powerful TIM ROM resident monitor program. Also built into the board is an RS232 or 20ma current loop interface for the console device. The TIM program provides a powerful set of commands for displaying and loading data as well as a means to initiate execution of programs and place breakpoints for program debugging and development.

Although the DATAAC 1000 is a perfect learning/teaching device, it also has all the elements of a complete and expandable computer/controller system. With on board PROM/EPROM sockets, power on reset, and all of the I/O lines, it is very straight forward to use the DATAAC 1000 as a dedicated controller. You can bury it in a product (OEM versions are available).

It also has a 72 pin, full buffered system bus connector which makes it simple to expand into a large computer system.

Three standard versions of this board are available. These are the tutorial version, the DATAAC 1000T, a very inexpensive version that is perfect for the beginner and for hands on use in microprocessor courses. The controller version, the DATAAC 1000C, a stripped down unit just waiting to take a PROM (programmed up) and run your factory! The fully populated version, the DATAAC 1000E, is a complete computer system at an unbelievably low price.

# DATAAC 1000E THE FULLY COMPLIMENTED VERSION



## DATAAC 1000E FEATURES

- FULLY BUFFERED ADDRESS AND DATA BUS
- SINGLE +5V OPERATION — INCLUDES POWER SUPPLY
- 1K x 8 RAM ON CARD
- POWERFUL TIM<sup>©</sup> MONITOR (IN 1K x 8 ROM)
- 29 UNCOMMITTED I/O LINES
- 16 BIT ADDRESS INPUTS AND DISPLAYS
- 8 BIT DATA INPUTS AND DISPLAYS
- FULLY ASSEMBLED AND READY TO PLUG IN
- COMPREHENSIVE MANUAL

- CASSETTE INTERFACE FOR OFF LINE DATA STORAGE
- 72 PIN EDGE CONNECTOR FOR EASY SYSTEM EXPANSION
- PROVISION FOR 40 PIN RIBBON CONNECTOR FOR I/O
- SINGLE CYCLE OPERATION TO EASE DEBUGGING
- FULL MEMORY DECODING
- POWER ON RESET
- RS232 AND 20ma CURRENT LOOP SERIAL INTERFACE
- 2 SOCKETS FOR 2708 EPROM
- CRYSTAL CONTROLLED CLOCK

*A one board microcomputer with everything? You will agree it has a lot, in fact it qualifies as being a complete system.*

With the on board EPROM sockets and on board I/O (don't forget the power-on reset) you have a unit that can stand alone and do a job.

With the unique touch pad switch register, you have full control of all functions, including single cycle. You don't need *anything else* to get started computing.

*Want to use a terminal instead of the switches? Everything you need is already there. The right interfaces — RS232 and teletype current loop are on the card. The 6530's 1K x 8 ROM holds the powerful TIM MONITOR program. This program allows you to use your teletype or load memory, read out memory, and start an applications program. It also formats the memory contents for reading out the memory to a tape in either a Hexadecimal or BNPF format. You can also load into memory with this format. For debugging, you can insert break points,*

set up the internal registers, and start your programs anywhere.

As a basis for a large system, the DATAAC 1000E has a fully buffered address and data bus, full 64K memory decoding (in 8K sectors), and all the timing and control signals you need to expand and expand. You need only plug the memory and I/O cards in the bus.

The on card cassette interface is provided to allow inexpensive off-line storage of programs and data.

All of this is built around the popular 6502 microprocessor. The 6502 has a powerful set of instructions that allow you to exercise 13 addressing modes. Programming the 6502 is relatively straightforward. In addition, a lot of software is available covering a wide variety of interests.

All of this computing power is available in the DATAAC 1000E for only \$345.00.

## SPECIFICATIONS DATAAC 1000E

<b>DIMENSIONS:</b>	9" x 12" OVERALL	<b>CONNECTORS:</b>	72 pin system bus card edge connector (.156" spacing)
<b>POWER:</b>	+5 @ 1.5A on board regulator supplied, 120VAC60Hz wall plug raw DC unit supplied EPROM requires +12 and -5 not supplied RS232 requires +12 and -12 not supplied		40 pin I/O ribbon cable connector (.1" x .1" spacing)
<b>FIRM WARE:</b>	TIM MONITOR 1K ROM (6530-004)	<b>CONTROLS:</b>	2 subminiature phono type for tape 1 subminiature phono type for power
<b>ROM:</b>	Sockets provided for 2 chips with 2708 pinout — EPROM, PROM or ROM		16 Address touch pad inputs 8 data touch pad inputs 9 control touch pad inputs (reset, run, halt, single step, step, normal, examine, load, deposit)
<b>RAM:</b>	1K x 8 static RAM plus 64 x 8 in 6530	<b>CLOCK:</b>	1MHz crystal controlled
<b>PROCESSOR:</b>	6502 type 8 BIT MICROPROCESSOR	<b>SYSTEM BUS:</b>	Fully buffered 8 bit bi-direction data bus Fully buffered 16 bit address bus Full decoding of 8 8K sectors Buffered $\phi$ 2 system clock power +5V, -5V, +12V, -12V, +8V, and ground 8 other timing and control signals
<b>ADDRESS PROVISIONS:</b>	Full 64K decoding is provided on board		
<b>PARALLEL I/O:</b>	Two programmable bi-direction 8 bit ports provided with 6820, also 8 bits available in 6530 — all brought to separate ribbon I/O connector		
<b>SERIAL I/O:</b>	RS232 and 20ma current loop provided		
<b>CASSETTE INTERFACE:</b>	Serial interface provided for low cost audio cassette tape for program and data storage		
<b>TIMER:</b>	The 6530 provides a programmable counter/timer		
<b>DISPLAYS:</b>	16 led display of address bus active at all times 8 led display of data bus 3 led displays status (run, single, examine) 2 led displays 1 BIT I/O latch (Q and $\bar{Q}$ ) 2 led displays jumperable users option		

# DATAAC 1000 MICROPROCESSOR CARD

## QUESTIONS AND ANSWERS

*Q: But, I don't know anything about computers?*

**A:** You should get a DATAAC 1000T. It comes fully assembled, tested, and working. It has a manual that walks you from the basics up to confidence. After you learn or as you learn the DATAAC 1000T can be expanded into a powerful computer system or stand alone controller. The fact that you can use and expand the tutorial board even after you become an expert gives it its nickname "The Tutorial Board with a Future."

*Q: I already know all about microprocessors. Why should I fool with the DATAAC 1000?*

**A:** The DATAAC 1000E offers you one of the most cost effective ways to prototype and install a controller or other such dedicated system. It is a super program development system and can form the basis for as powerful a computer system as you ever would want.

*Q: OK, Here's my \$185.00, what else do I need to buy (spend) to get started?*

**A:** Nothing! The DATAAC 1000T is not a kit. It comes completely assembled and ready to plug in and use. No extras are needed. No Teletype or TVT. It is handy to have a pencil or pen when following the text but most everyone already owns one or more of these handy accessories. (Write for prices on used but completely resharpened pencils if you don't).

*Q: Is there any software available?*

**A:** There is a virtual cornucopia of software available for the 6502. Much of this can be run on the DATAAC 1000 with little or no alteration. The powerful TIM monitor plugs right into the board. Specifically available from DATAAC ENGINEERING is an assembler, editor, and Focal, a high level language somewhat similar to basic. Also, other specific programs as they become available.

*Q: Can I run Basic on my DATAAC 1000E?*

**A:** Yes, Tiny Basic for 6502 is available from several sources for \$5.00. It is also available from DATAAC ENGINEERING.

*Q: Can I add memory to my DATAAC 1000?*

**A:** Yes, you sure can. The DATAAC Memory Card not only has lots of RAM Memory but has EPROM Sockets and an EPROM Programmer built in. Slick, hey?

*Q: Can I buy the board bare?*

**A:** No, DATAAC is not making an unstuffed version available to the individual. We feel that the beginner should start with a fully tested, working unit. OEM's should inquire about special versions.

*Q: Does DATAAC make any other good stuff?*

**A:** Yes, a Memory Card, Mother Board, Extender Card, Kluge or Prototyping Card. In the works or planned is a graphic video display, an extended I/O card with A to D and D to A, and several surprises. Keep in touch — return your reply card — Let us know what you need and want.



----- CUT ALONG DOTTED LINES FOR MAILING -----

FOR REPLY  
PLACE  
STAMP  
HERE

**DATAAC ENGINEERING**

P. O. BOX 406  
SOUTHAMPTON, PA. 18966

----- CUT ALONG DOTTED LINES FOR MAILING -----

FROM:

**DATAAC ENGINEERING**

P.O. BOX 406  
SOUTHAMPTON, PA. 18966

TO:

FIRST CLASS