the digital group inc.

flyer

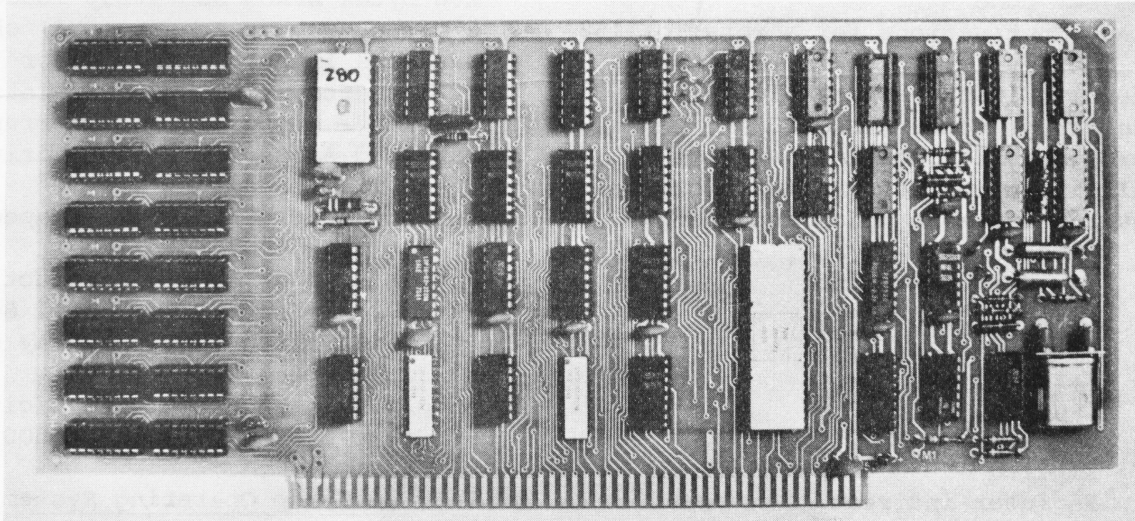# The Z80 CPU

The Digital Group proudly announces the addition of the Zilog/Mostek Z80 to our line of Digital Group Systems. We consider the Z-80 to be the next major microprocessor and expect it to outsell all others and become the leader very quickly. We have never before been able to recommend any of our processors (6500, 6800, 8080A) without some qualifications as to their suitability for certain applications. The Z-80 has ended that.

Why? The Z-80 offers all the major advantages of the 6500, 6800, 8080, and even IBM 360-like instructions. Zilog added 80 new major instructions to the 8080's instruction set which increases the power of the system dramatically.

> Control operations are vastly simplified with direct bit manipulation. Data handling has also been significantly improved with block memory moves and block I/O.

But the final touch is that the Z-80 is completely software compatible with the 8080A. Excluding timing loops, _all_ of our 8080-based software runs without change! That means you can take advantage of the Z-80 and immediately utilize all the 8080 support that is already out there.

What else? Plenty. With a Digital Group System's video-based operation, software approach, and the Z-80 you are quickly at the state of the art with a full system. As always, the Z-80 CPU card is completely system compatible and merely requires exchanging CPU cards to change processors. But the best part of all is that you can get a Digital Group System with a Z-80 processor for only $50 more than our already reasonable price.

po box 6528, denver, colorado 80206   (303) 861-1686

The Digital Group officially announced the Z-80 at NCC June 6-11, and we're expecting to make initial deliveries on Z-80 systems even before you receive this Flyer. The Z-80 is another real product from the Digital Group - not just a paper announcement.

We're obviously very excited about this processor and we think you will be too. Here's a brief look at some more details:

Z-80 Features:

    Complete compatibility with 8080
      object code
    80 new instructions for a total of 158
    696 Op codes
    Extensive 16-bit arithmetic
    3 Interrupt modes (incl 8080), mode 2
      provides 128 interrupt vectors
    Built-in automatic dynamic memory refresh
    Eleven addressing modes including:
        Immediate
        Immediate extended
        Page zero
        Relative
        Extended
        Indexed
        Register
        Implied
        Register indirect
        Bit
        Combination of above
    New Instructions (highlights):
        Block move up to 64K bytes
          memory to memory
        Block I/O up to 256 bytes to/from
          memory directly
        Input/Output from any register
        String Search
        Direct bit manipulation
    22 Registers - 16 general purpose
    1, 4, 8, and 16 bit operations

Digital Group Z-80 CPU Card:

    2K bytes 500ns static RAM
    256 bytes EPROM bootstrap loader (1702A)
    2 Direct Memory Access (DMA) channels
    Hardware Interrupt controller
        Supports all 3 modes of interrupt
        Mode 2 supports 128 interrupt vectors
    Data and Address bus lines drive
        30 TTL loads
    Z-80 runs at maximum rated speed-
        400 ns cycle
    Single step or single instruction step
    EPROM de-selectable for full 64K RAM
        availability (programs may start
        at location Ø)
    Complete interchange with Digital
        Group 8080A, 6800, and 6500 CPU's

Digital Group Operating System
Support supplied with Z-80:

        Read audio cassette
        Write audio cassette
        Dump registers & storage in Octal
        Dump registers & storage in Hex
        Program in Octal
        Program in Hex
        Video-based operation support
            routines

The operating system is supplied on audio cassette with full source listings.

Z-80 System Price List:

Order Code	Description	Kit	Assembled
Z80-3BD	Z80-CPU with 2K RAM, 512 character TV Readout interface, Four 8-bit input ports, Four 8-bit output ports, 4 position motherboard	$475.00	$695.00
Z80-4BD	As above with total of 10K RAM	675.00	945.00
MB-2	9-position motherboard substitution	15.00	45.00
Z80-CPU	Z80 CPU card only	295.00	395.00

digital group software systems inc.

WHAT IS DGSS SOFTWARE?

DGSS Software is specifically tailored to execute on a Digital Group System unless otherwise specified. Most packages are provided on audio cassette (Suding format - 1100 baud) with directions-for-use documentation. Source listings are not provided. (Tiny Basic programs are self-listing.) If you purchase our packages for any machine other than the Digital Group's, you are on your own (good luck!). This is not meant to prohibit use on other equipment, just a statement that DGSS cannot support your efforts at this time.

Z-80 SOFTWARE

DGSS is working hard to provide all our current 8080 software in Z80 format. It should all be available soon at identical prices. If you are purchasing a Z80, you must specify whether you wish an 8080 or Z80 tape. Please specify, as timing loop factors make the tapes incompatible without a crystal change.

Z80 Tiny BASIC Extended is available

Improvements - Optional LET clause
              Semi-colon delimiter no longer requires a space

Order Code	Price
TBX-Z80	$5.00

Tiny BASIC Extended for Baudot Teletype is available for Z80 & 8080

Same features as above, but also includes a hardcopy version of Biorhythm.

Order Code	Price
TBX-BAU-Z80	$5.00
TBX-BAU-8080	$5.00

In addition, we will offer for a limited time an upgrade kit for previous
purchasers of our systems only. This kit will allow you to transfer many
of the IC's from any of our CPUs to a new Z80 CPU at some savings. THIS
OFFER IS LIMITED SOLELY TO PREVIOUS SYSTEM PURCHASERS AND FOR UPGRADE
PURCHASES ONLY WHICH ARE VERIFIED BY OUR RECORDS. New CPU documentation
is, of course, included.

Order Code	Description	Kit	Assembled
Z80-UPG	Z80 CPU upgrade kit	$185.00	na

STANDALONE AUDIO CASSETTE INTERFACE

We are now offering a slightly improved standalone version of the audio
cassette interface that we include on our TV Readout (TVC). This is Dr.
Suding's latest audio cassette interface as described in the July '76 issue
of BYTE. It is designed to interface to operate with any audio cassette
recorder of some quality ($50 up).

The kit consists of all parts, a small single-sided PC Board (4.75" by 4.825")
which plugs into a 22-pin connector. The connector supplied is single readout
with solder eyelets. This interface is not plug-in compatible with any bus
structure we know of (including ours). Therfore, you will be required to
actually hook up 3 power lines and 4 data lines - 2 to ports. Driving software
is included with the kit and in the BYTE article.

In addition to its primary function as an audio cassette interface at 1100 baud,
this cassette interface will also support the proposed BYTE "Kansas City" 300
baud standard, amateur radio radioteletype, standalone radioteletype terminal,
and audio frequency shift keying unit in general. Various component value changes
to support these applications are covered in the BYTE article but are not supplied
with the kit.

Basic Specifications:

Data Rate: 1100 baud   Power: +5V, ±12V all with nominal current reqs.
            (100 characters/second)
Recording method: FSK with full-wave active filters, standard wide-shift RTTY freqs.

Order Code	Description	Kit	Assembled, Tested & Aligned
CAS-STD	Full Kit with all parts and documentation	$30.00	$65.00

MANUALS - Separate Purchase

There have been a number of inquiries requesting purchase of our manuals separately. At this time the Digital Group does not provide or sell its manuals separately. We do intend to offer them at some future date. All is not lost however. Many of our circuits will be covered in Dr. Suding's hardware series in BYTE.

DEALERS - We have recently added a number of stores and dealers that will be carrying our line shortly. By the next Flyer, they should have their demonstration units operating and initial stocks in place. We will be publishing a complete list at that time.

CLEARINGHOUSE

A number of you were probably surprised to receive another issue of the Clearinghouse. Yes, it has really risen from the ashes and we are very hopeful for its success. New subscriptions are now being accepted at $12 per year. Old subscriptions still have 9 issues to go. Pete Peterson is the new editor and is doing an outstanding job. He will certainly need your support.

CURRENT ORDER TERMS:

Delivery: 3 weeks ARO (after receipt of order)
Terms: Payment with order, BankAmericard, or Mastercharge.
        CODs will be accepted with a 5% surcharge ($5 minimum surcharge).
        COD charges and shipping costs are borne by the purchaser for CODs.
        Minimum COD order is $50.
Shipping: All prices include shipping charges which may be UPS or First
        Class mail at our option. If you have a preference, please specify.

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ORDER FORM

NAME _____ DATE _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

QUANTITY	ORDER CODE	DESCRIPTION	PRICE EACH	AMOUNT EXTENDED

TOTAL	
3½% SALES TAX COLO RESIDENTS	
TOTAL	

AMOUNT ENCLOSED _____

BANKAMERICARD OR MASTERCHARGE NUMBER:

_____

EXPIRATION DATE: _____

INTERBANK NUMBER (M/C ONLY) _____

SIGNATURE: _____

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