Making the Z67-IDE work on My Computer

Some complain that 8-bit Heath computers are limited. I have found that for the simple tasks, it is much quicker and easier to boot the Heath, do the job and shut it all down in less time than to boot current production machines. This is especially true for a Heath equipped with Norberto's Z67-IDE system.

Norberto has asked that I help with the distribution of the software to put the equipment into service. The installation is not very complicated and only takes a few minutes. The biggest problem that most will face is getting the software from the Internet to the Heath. I am assuming that most of us have some form of current production computer that we use to access the Internet and that you can download the files to this computer. That part is pretty easy. The tough part is getting it from your PC to the Heath.

Those who were active on-line prior to the Internet probably have some sort of modem program that they can use to transfer files from the PC to their Heath. Late arrivals to the 8-bit world may not. Back in the olden days, we had to use an acoustic modem and dial into a Bulletin Board Service (BBS) system over the phone lines at about 300 to 2400 Baud. I started using the Z80 Command Processor (ZCPR) almost from the beginning, starting with ZCPR2 and upgrading with each release up to ZCPR 3.4 better known as NZCOM. If you are running a hard disk on an 8-bit computer, it is so much easier if you are running ZCPR. NZCOM was released into the public domain several years ago, so it is available for download and use on your new Z67-IDE.

While modem programs were developed for use with a modem to dial into a BBS, they will work in direct connection mode as well and make sending files between dis-similar computers much easier.

On the CP/M systems, one application for the Z-system was a very good modem program – ZMP (Z-system Modem Program). This application will run on standard CP/M and will allow placing the transferred files on any disk and any user area of that disk without having ZCPR installed. For those who need a modem program, I have prepared disk images of a bootable ZMP system and packaged them in Les Bird's H8D form. Les' program runs on a PC and will send the H8D file to the Heath using the PC's serial port to the Serial Printer Port (340Q) on the Heath and will write the files to an H-17 disk on the Heath. So, the first step is to download Les Bird's application and set up the proper cables to get communication via the Heath's Serial Printer Port for disk image transfers. You should do this in advance of installing the Z67-IDE and also get familiar with the ZMP program operation.

On the HDOS side, we have MAPLE. It will only do X-modem to send single files, but it runs at 9600 baud on a 2 MHz machine and will send a file over in a just a few seconds.

Both ZMP and MAPLE are set so that you can use either port 330Q or port 340Q for the connection.

Note: Due to the limited space on an H-17 floppy, I could not include all of the ZMP files and had to leave out some non-essential files that you will want to download and add to your system after you are up and running. The documentation files will also be helpful from the beginning to get familiar with ZMP. Download the PDF version and print it to use with the disk images. There is also a PDF document for MAPLE.

My serial cables are shown below:

Female =   >pin#---------------------Pin#----   = Male

```
        Standard PC cable:                 Null Modem Cable for PC
     DB-9                    DB-9        DB-9                       DB-9
    >1--------------------------------1----    >1--------------------------------4<
    >2--------------------------------2----    >2--------------------------------3<
    >3--------------------------------3----    >3--------------------------------2<
    >4--------------------------------4---     >4--------------------------------1<
    >5--------------------------------5----    >5--------------------------------5<
    >6--------------------------------6----    >6--------------------------------4<
    >7--------------------------------7----    >7--------------------------------8<
    >8--------------------------------8----    >8--------------------------------7<
    >9--------------------------------9----    >9--------------------------------9<
```

```
Null-Modem for PC – DB-9 to DB-25      Heath Null-Modem Cable for H-89 to H-89
 DB-9                    DB-25             DB-25                      DB-25
    >1-------------------------------8----       >1--------------------------------1<
    >2-------------------------------3----       >2--------------------------------3<
    >3-------------------------------2----       >3--------------------------------2<
    >4------------------------------20----       >4--------------------------------5<
    >5-------------------------------7----       >5--------------------------------4<
    >6-------------------------------6----       >6-------------------------------20<
    >7-------------------------------4---        >7--------------------------------7<
    >8-------------------------------5----       >20-------------------------------6<
    >9------------------------------22----
```

```
               Serial Extension Cable – DB 25
                DB25                       DB25
               ----1------------------------------1<
               ----2------------------------------2<
               \\ all lines straight through \\
               ----24----------------------------24<
               ----25----------------------------25<
```

Some H8/H89 Configurations may not have all of the serial ports. For those who do not have a Modem Port (330Q), I have implemented the Set-Port option in ZMP to allow selecting either the standard modem port (330Q) as port "A" or the Serial Printer Port (340Q) as port "B". Either port may be set as the default port on startup. To swap ports, type Esc, L to open the line parameters menu and then select Option O to toggle to the other port. Set the default port in the configuration menu.

To use port 340Q with MAPLE, just run the modified version -- MAPLE340.ABS

To use the serial communication line on the Z67-IDE board, use the standard PC DB9 to DB9 connected to the 3 wire serial cable that connects to the Z67-IDE.

For PC to Heath communication using ZMP or MAPLE on the Heath using port 330Q, use the DB9 to DB25 connected to the Heath Null Modem Cable to the Modem port (330Q) on the Heath.   (NOTE: H-8 user's may have to use a gender changer as well on the Heath end.)

To use Les Bird's H8D application, I use the PC DB9 to DB25 with a DB25 Extension Cable connected to the Serial Printer Port (340Q) on the Heath. This is also the cable set to use with the ZMP or MAPLE set to work with the Serial Printer Port 340Q.

For communication between two Heath computers, use the DB-25 null modem cable. You may need to use a gender changer if the plugs don't match the H-89 cable shown for use on port 330Q.

I have prepared *.H8D disks images for ZMP and MAPLE. They are all boot-able.

ZMP for CP/M boots CP/M 2.2.04 for both H-17 and H-37 disks. The H-17 access is configured for a single drive so that those having only one H-17 drive can swap disks during the transfer process. If you have multiple H-17 drives, you can reconfigure the boot disk to take advantage of your hardware. If you have H-37 disks, you can copy the software to a soft-sectored disk. The packages are:

ZMP2MP2.H8D -- H8/89/90, Z80 CPU, 2 MHz Clock, Max Z-modem rate = 2400 baud, port "A" (330Q) or port "B" (340Q) .

ZMP2MIP2.H8D -- H8/89/90, Z80 CPU, 2 MHz Clock, Interrupt driven I/O requiring Int-5 set on serial card for the modem port, max Z-modem rate = 4800 baud, port "A" (330Q), or port "B" (340Q).

ZMP4MP2.H8D -- H8/89/90, Z80 CPU, 4 MHz Clock, max Z-modem rate = 4800 baud, port "A" (330Q), or port "B" (340Q).

ZMP4MIP2.H8D -- H8/89/90, Z80 CPU, 4 MHz Clock, Interrupt driven I/O requiring Int-5 set on serial card for the modem port, max Z-modem rate = 9600 baud, port "A" (330Q), or port "B" (340Q).

If you can configure your serial port to use Interrupt Level 5 by setting the jumper pin on your serial card, you will get twice the communication speed by using the interrupt I/O packages. Use the package that best matches your hardware.

The MAPLE disk image contains the origianl version using port 330Q and a modified version MAPLE340 for use on port 340Q. You may use either port at 9600 baud when running HDOS at 2 MHz.

The Z67-IDE software will be packaged in a similar manner – Less than 90k of files per disk so that it will fit on a single-sided H-17 disk. If you have greater capacity drives, you may copy more than one package to a disk.

There are two sets of Z67-IDE software for CP/M – a set for H17 & Z67-IDE disks and a set for H37 & Z67-IDE disks. With each installation there is a read-me file containing instructions for installation. I have tested these on my H-89 and believe that it will work for you if you follow the procedure precisely. I recommend that you print these instructions and read them all the way through before beginning. I would also recommend using a high-lighter to make file names and key points easier to find during the install.

For HDOS, there are no special files required except the Z-67 PREP/PART UTILITIES Disk.

Norberto has done us a great service by developing the Z67-IDE system and making it available to us. Couple the Z67-IDE with ZCPR on CP/M or SuperSysMod2 on HDOS and you have a Heath that is fast and fun to use.

I am active on the Google-Groups SEBHC site and will be glad to answer questions for any having problems with communication between computers or getting the systems loaded.

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