1088 KB

ep128emu

EXOS memory management

Again on stage at Enterprise!

Written by:
Matusa István
(Tutus)

Dear Reader!

We've been quite busy since the last time you heard from us in November and there's been a lot going on in the offices of ENTER-PRESS.

The Enterprise Club in Budapest got launched again after long years of inactivity and from January 1st 2017 we have a membership system set up too. Thus the printed copies of EN-TERPRESS are now available only to subscribers and the electronic format is the one accessible by everyone. However, the e-magazine will only be available a month after the release of each printed issue and only on the website http://enterpress.news.hu Good news is that new issues are coming out every two months! The total page count will be depending on the amount of material, but you can expect a minimum of 12 pages and the well-known quality with colored covers.

The ENTERPRISE CLUB also has a website now. Besides tons of useful information the 1088K subscribers can access password protected extra content. This means additional services and accessing articles never published in the magazine.
Club website:
http://enterpriseklub.hu

Rising interest!

We also wouldn't have thought that even former Enterprise owners would be rejoining the community. There are many who no longer own a machine, but buy a new one after finding us, and there are many joining our group on Facebook to read about the new updates.

These newcomers are just now finding out about the latest hardware and developments, so we have to buckle up when it comes to satisfying the public need. I'm talking about continuing the work on the already popular SD card and the internal 1Mb memory-expanding card (Which sadly Saint has stopped producing until the number of orders grows)

This is the reason why SzörG decided to remodel the 1Mb memory-expanding card with more up-to-date technology and components. Of course he is taking care of the production of the SD cards too and has plans for new hardware. You'll learn about these in future issues of our magazine. What is currently more important that we are also creating a Retro Webshop where these EP hardware are going to be available for purchase.

Wonder-hardware for Enterprise

In the "Testing" topic of the Enterprise forum an interesting question had been posted by "balagesz". "I've been meaning to try this for a while, but only recently have I got the time to do so. However, before I write about any details, here's a fun question: what's on the picture?"

The answer came from "IstvanV": "The hardware using external color input (EC0-EC3)?"
Yes, ladies and gentlemen! After 30 years of the original release of the Enterprise computer people are getting passionate again and firing on all cylinders to come up with fantastic hardware ideas. Although we cannot catch up with all the years that have gone by, we can still make them feel fewer. If balagesz's card becomes reality a lot of EP game developers' dream will come true and many new games will come out thanks to it. Hopefully we can get balagesz to write us a little something about this piece of wonder in our next issue. Of course development is in a very early stage, but it sure makes an interesting story.

About the club again

Subscription period for 2017 ended on February 15th. Buying membership for 2018 will be possible at the end of the year. Who missed the opportunity this year, but still wants to read ENTERPRESS in print will be able to buy each of the upcoming issues using an honesty box system (for details see the bottom of this page!)
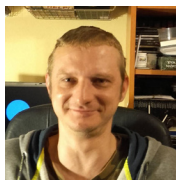Club meetings will be held at the end of each month in the „Skála" conference room of the Nyugati Education Center (Nyugati Oktatási Központ). Exact dates will be posted on the Enterprise forum and the club website. Check the website regularly for it will be constantly updated throughout the year.

Have fun and a good time reading our magazine!

Enterprise 1088 Kb

**Written by:
Sárközi Gergely
(SzörG)**

Now a brief step by step description will follow, documented with photographs, on how to install a 512Kb or 1024Kb memory expansion card inside an Enterprise machine (by now only available from RetroHQ products). Actually this a re-make of an old article, but it was without pictures explaining all the phases like this that follows. Here is the layout of the EXP2 connector on the motherboard, each point with its assigned colour, according to the disposition of the Dupont plug-in wiring scale. Obviously, every colour cable must be soldered to the correct point marked on the board (Preferably without short-circuits).

The numbered descriptions are followed by the pictures of the gallery:

1. This amazing 2x512 Kb PiggyBack Internal Expansion (there's a 512Kb version of it, though it's just equipped with only one IC ram), is a bit intimidating but very useful hardware, and most important, fits perfectly the machine.

2. Cut the two flat cables covered with paper by means of a strong scissors (say, with the kitchen ones when the woman doesn't pay attention, lest she yell at you)

3. Release the black GND cable that comes from the motherboard, then with a parrot pliers (also a combination pliers can suit) release the factory 64 Kb extension from the capture of the 3 plastic spacers and fold it up.

4. Cut the flat cable with plastic cover with the aid of a cutting pliers.

5. Remove the plastic cover from the wires, this is important because if we begin heating them with the soldering iron, first, it will blend, emanating an unpleasant odour, and second, we will not know which wire we are.

6. Tear every wire from the paper-covered flat cable. Here we will not be able to avoid the unpleasant smell when heating, but it is necessary to de-solder the wires one by one, so you have to do it.

7. De-solder and extract all the wires pulling them with a tweezers, with special attention to the wiring of EXP1. Be very careful, so that every piece of wire comes out, important for avoid difficult diagnosis afterwards. Be careful with EXP1 that there isn't galvanic remains(an arc or a trace) between the contact holes that could make connection with the others. If a separation is not observed(i.e. it leads to the adjacent hole), then we have a short-circuit there!

8. Use a vacuum de-soldering iron or a manual de-soldering pump and remove all excess tin from the contact holes.
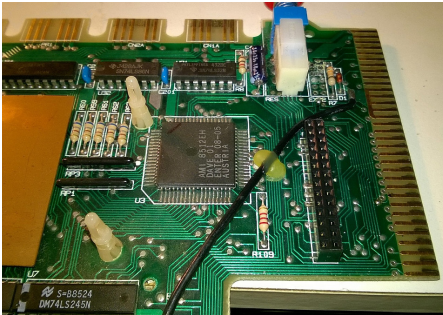
9. Insert the female header connector on to it's place on the motherboard and solder all its legs.
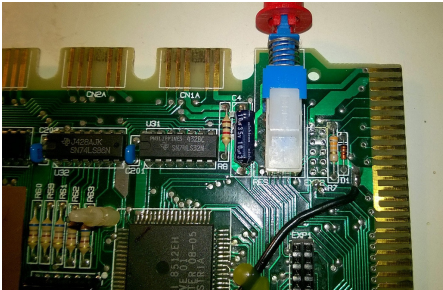
10. Now let's look at EXP2, here 3 contact holes are soldered between them because they are all GND. The Dupont connector soldering order is displayed in the image at the beginning of the post.
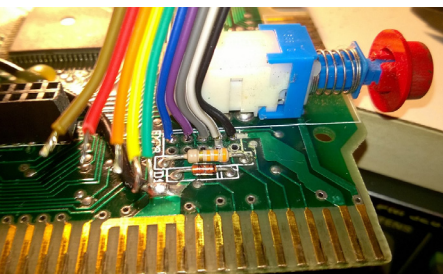

11. Start with the row near the reset switch, solder the black, white, gray, purple, blue cables, the colour sequence is important.


12. If all is successful, blend the green, yellow, orange, red, brown wires on the outside row of EXP2.

13. Attach the Ram extension to the header connector and insert the Dupont cables in place. You must follow the order, black is the first one on the left hand, the brown on the right hand is the last one, as you can see in the picture! If we do not put it well, it will not break the expansion, but it will not start!
a screen like
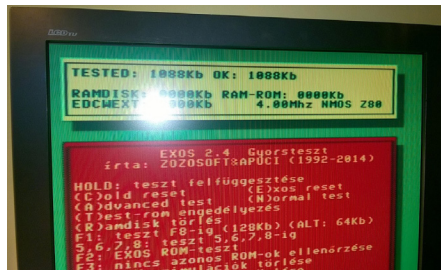
14. This Ram extension card has been previously tested, so when switching-on the Enterprise, you have to see a screen like is seen on the picture, 1088Kb, this is, 64Kb of motherboard graphics ram + 1024Kb internal extended memory. Of course you will see that screen only If your machine has the EXOS 2.4 EPROM installed, or if you use the Retro Tauta SD Adapter (either REV 1.0 or Premium).
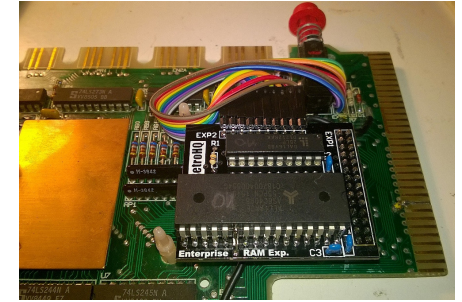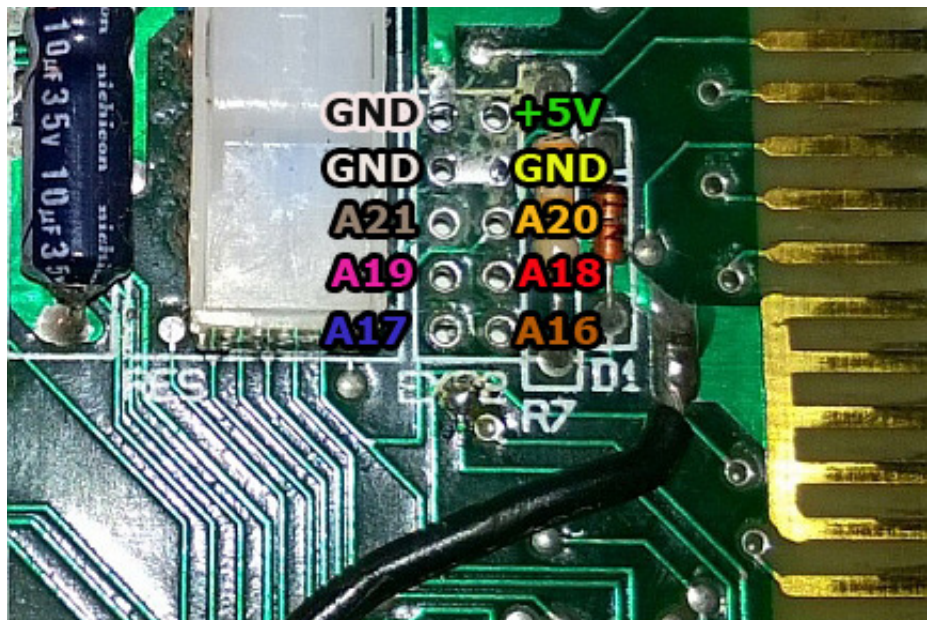
15. Bend the Dupont cable, curling it around the upper plastic spacer, so that it does not crack, crease, etc. And then we could easily put the top cover back.

English-man Saint has announced that from now on he will only manufacture large series of this memory expansion, so we thought we would start manufacturing it at home, since there is a great demand for it.

Soon, an online Retro Web Store will be launched, from which you can order the 1088 Memory Extender, as well as other Enterprise Devices (SD Cards, etc.) More details in the following ENTERPRESS Magazine!

Ep128emu 2.0.11 version
with tvc64emu

(First public Windows-beta version by IstvanV)

Use for Beginners: In the Start menu, the emulator program group contains the other modes, including the TVC (you should put the shortcut on your desktop). Normally, you should use the Open GL version, for older machines/VGAs you may need the software graphics mode.

After booting, with File / Configuration / Load (ALT + Q) a machine type can be selected, the more common TVC configurations are there in presets (but it can also be configured with the owner configuration files), there are 1.2 and 2.2 BASIC, VTDOS (floppy), SD, FileIO versions (where there is no massive storage selected, the tape deck is used as default). Under Options / Disk / Configure (ALT + D), insert a disc or SD card image. For using the PC Floppies, insert A: or B: to select the real drive.

Machine / Tape can handle the tape emulation, ALT + T cassette file selection, ALT + P play, ALT + O stop. Wav files can be used.

The TVC keyboard has more buttons than either EP or PC, but it has no function keys. For this reason, there are some assigns on the F1-F8, ESC, TAB buttons. ESC for END as TVC is on the right. (on EP it is STOP). But later each button can be configured as desired.

Other useful keys include F9 image size, F10 emulation suspension, F11 reset, F12 screen saver image file. Alt + W full speed for slow program parts :-) ALT + S snapshot save, ALT + L snapshot load.
ALT + F sets the emulator's working directory (Options / Set working directory), which is interesting for Fi-

leIO, while and LOAD / SAVE applies to the programs.
- A DSK extension can be assigned to the TVC mode (optional during installation).

- UPM Config:

- In disks of unknown format, if the disk image is 720K then you set 80/2/9.
That is, the 720K UPM disks do not have to be manually set.

- Improved handling of accented file? and path names in Windows (FLTK file manager functions do not work with Unicode characters on Windows, Separate Microsoft specific code...) ALT + B is a debugger, separate lessons can be told about this..
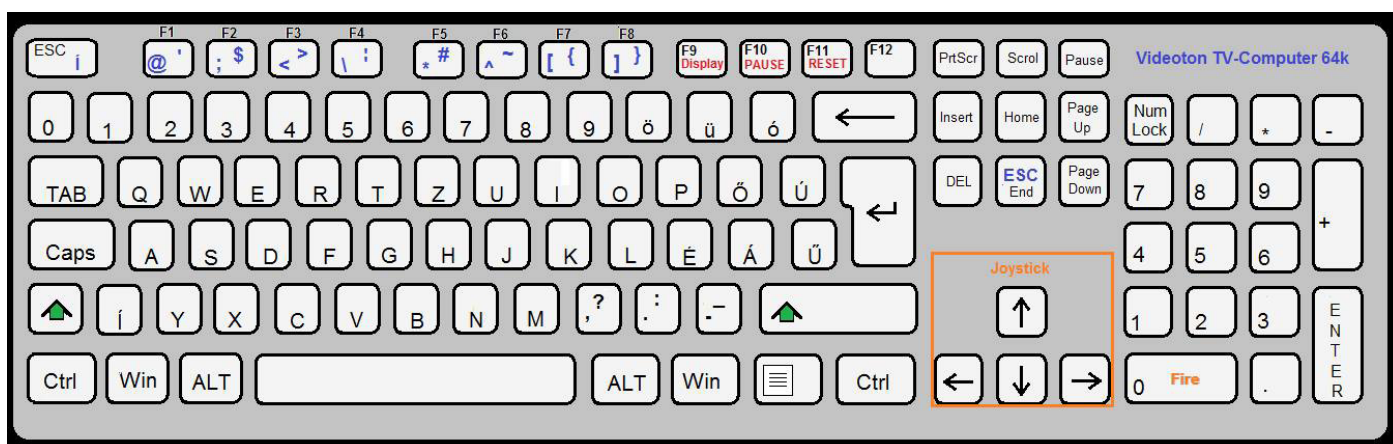
You can download it from the following link:
https://github.com/istvan-v/ep128emu/releases/tag/2.0.11.1

Videoton TV Computer Facebook Group:
https://www.facebook.com/groups/videotontvcomputer/

Zozosoft

Assigning the ep128 emu TVC key

Karakterek
felhasználása később

Written by:
Bodnár Tamás
(Szipucsu)

Saving characters for future usage
The character defining software on the demo cassette has a huge shortcoming. In case we want to edit multiple characters we have to copy the numbers after SET CHARACTER one by one onto a piece of paper (there was no emulator at the time of the demo cassette) and then type it in again. In short: there is no option to save the defined characters. However, this could be solved easily. The software already stores the existing characters in its memory and copies them from there for editing and rewriting on our command. This means that it should be able to save the rewritten data in the same memory easily. And then we could load in the redrawn characters once we wish to continue our work. Of course saving a character set can also work by checking the numbers in the memory using SPEEK and then saving those. This on the other hand would take long. It's worth to use the following code instead:

```
1  ALLOCATE 9
2  CODE
   ENT=HEX$("3E,01,01,80,04")
3  CODE =HEX$("EB,F7,08,C9")
4  LET FONT=(SPEEK(255,16372)
   +SPEEK(255,16373)*256)-1152
5  OPEN #1:"CHRSET.BIN" ACCESS
   OUTPUT
6  CALL USR(MENT,FONT)
7  CLOSE #1
```

Loading back the character set is similar except in the third line you need '06' instead of '08' and in the fifth line you put INPUT instead of OUTPUT. With this little trick we can also ins-

tall character sets of machine code games if they are stored in a separate file.

It's possible to store multiple character sets in the memory at once and choose the one we wish to work with (obviously only one can be active at a time). The Art Studio drawing software for example uses this very same option.

We can now add the load/save feature to the character defining software, but if we are already making changes we can include some other comfortable improvements. For example

one that would exchange typing in character codes for choosing characters from a gallery. Most users cannot recall for example what character 45 is in an instant, but a character gallery would bypass this problem by showing us the actual look of that character.

These modifications of course have already been made in the character defining software. This modified version can be downloaded from ep128. hu. Look for CHR2012 in the Util software package (http://ep128.hu/Ep_Util/Util.htm).

Some interesting functions of the BASIC character defining software:

NEXT - Selecting a character for editing (after starting the software we are in this mode)
RECALL - After selecting a character for editing its image doesn't show up automatically on the work surface. We use this function to make this happen.
DEFINE - If we are done editing the character, we use this function to redefine it.
FILE - Saving and loading character sets. This feature also enables users to save software codes of BASIC compatible software in txt format. When selecting a file use the file extension option.
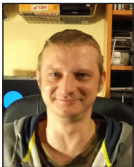**INVERT** - Inverting the image of character
HORIZONTAL - Flipping the image of character horizontally.
VERTICAL - Flipping the image of character vertically.
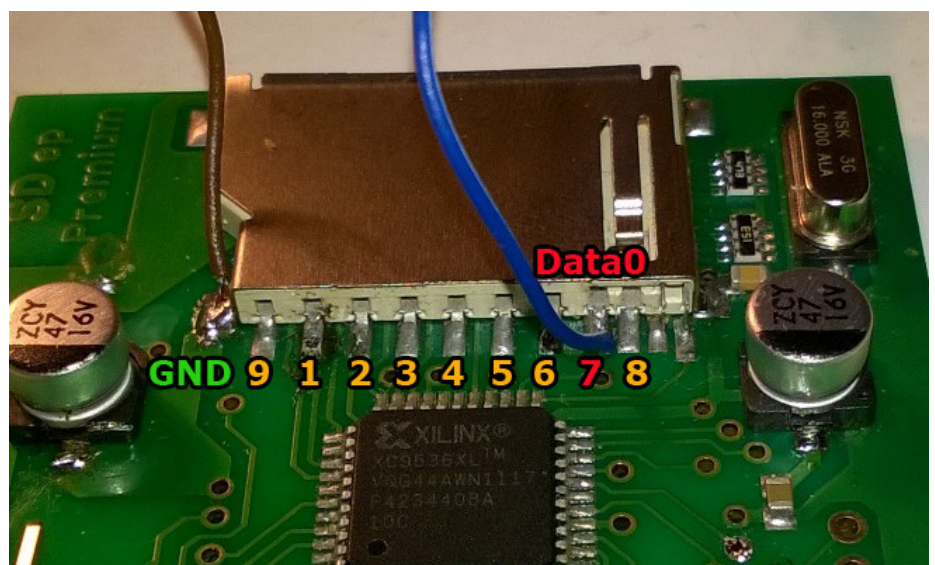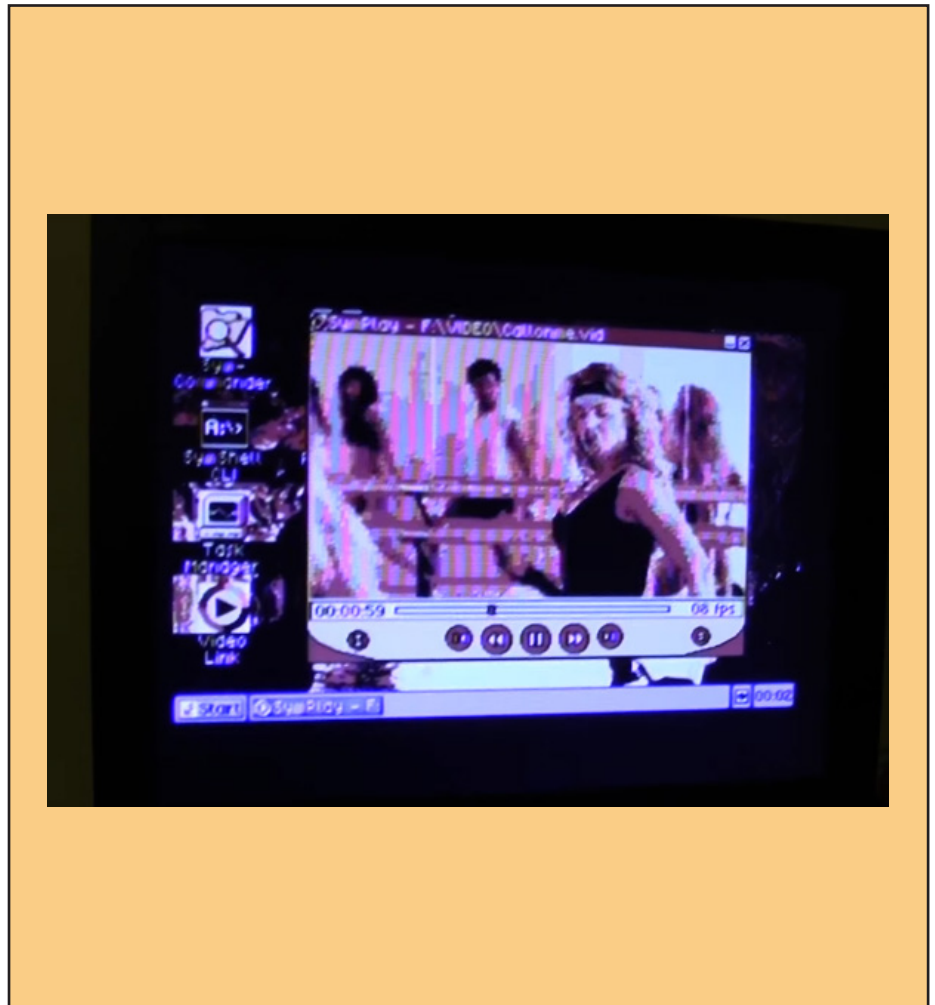
Enterprise 128

SD adapter premium activity LED

Written by:
Sárközi Gergely
(SzörG)

This is a problem, the SD Adapter Premium have no activity indicator LED. Is an very easy hack, let's do it one.

Part list: 1x LED, 1x 220 Ohm resistor, 2x 5cm long wire

To do: Solder the 220 Ohm resistor to positive leg of LED (the longer leg of this part), and the wire too. Solder with the wire to the PIN7 of the SD Card slot. Then solder the another wire to the negative leg of LED, and solder the wire to the GND. Use two short heat shrink tube on soldered parts, it prevents a short circuits. Place it the LED in the plastic case, and turn on the computer and try it

EXOS compatible memory management – Part I.

Written by:

Németh Zoltán (Zozosoft)

The ENTERPRISE in its own time, even in the whole history of the 8-bit machines, has been exceptionally flexible to expand. For example, the maximum manageable memory size was determined on the almost unimaginable 4 megabytes at that time. In addition, this is done on a very clear and transparent way: the Z80 64K address range is divided into 4 16K pages, and the 4 megabytes area in 256 16K segments. Then you can put any segment on any Z80 page, and even find out which segment has been inserted. Many other computers only can envy such simply usable system. Later, on the Spectrum conversions context I will detail what kind of

„DIY Knowledge" is necessary to convert from Spectrum 48 to 128, what the other Russian clones do to manage the 256K or maybe 1 mega memory.... But in the case of the socialist little brother, that is, the TVC, the system was significantly reduced and complicated, just to save a few logical gates...

Of course the hardware option alone is very limited, to take advantage of it we need an operative system that can handle all.

Fortunately, we got a really great system, which has completely assumed its „Enterprise eXtendable Operating System" name! EXOS is responsible for detecting the current configuration, making an inventory of available memory, serving the memory requirements of different system devices and user programs, keeping a record of the currently occupied/free memory areas. Just like in today's modern operating systems! It is not really possible to talk about operating systems on the Enterprise's contemporary machines, memory management is practically only within the records of the BASIC interpreter, variables, etc. For example, a Spectrum program can not know at system level if it runs on a 48, 128, or even a Russian Scorpion 256 machine. Here, leaving aside Basic, there is virtually nothing more you should pay attention. In addition, all is fixed and unchanged, the screen memory is in a fully predetermined position, with no obstacles to the „POKE-PEEK" style programming. On Enterprise saga, on the one hand, several more or less different machine types were relea-

```
 1.  FOGLAL
 2.            EXOS 24
 3.            JP NZ,HIBA
 4.            LD  A,C
 5.            CP 0F9H
 6.            JR  NZ,FOGLAL
 7.  EZKELL    LD  BC,5FAH
 8.            PUSH BC
 9.            EXOS 24
10.            LD A,C
11.            POP BC
12.            CP C
13.            JP NZ,HIBA
14.            INC C
15.            DJNZ EZKELL
16.            EXOS 24
17.            CP 7FH
18.            JP NZ,HIBA
19.            LD DE,3200
20.            EXOS 23
21.
```

sed (64, 128, EXOS 2.0 and 2.1, English and German) and, on the other hand, with the various extensions the number of different configurations increased.

Unfortunately, the company's failure also led to the lack of official support, information, articles, books, how to use this excellent system properly, how to properly program it. Thus, machine-programmers used the most commonly-used styles, using a fixed environment commonly used on other machines, using just the available documentation to find only fixed points. This was especially true for us Hungarians, first because the most different EP64 did not come from us, and on the other hand the official documentation appeared late and not too good translated. In addition, most of the published books and articles have advertised this fixed memory configuration „POKE-PEEK" style.

What kind of problems caused this? The infamous incompatibility between the English-German machines was all due to this. This was especially true for the BASIC/ machine code mix programs. (if I remember well Jano's Spectrum conversions were the forefront of this ...) Programs that interfere with some ROM extensions. In particular, the well-known TAPE problem, that didn't work together with a floppy controller because it simply redirected to the EXDOS device. This has been spotted, but the thing is now repeating more and more with the winchester controller, as more space is reserved in the system segment, and it's not particularly good to include it in the seized memory. At the end it could cause even greater data loss! The conclusion we came in the context of the „World Union of EP owners" movement was the problem that from the existing EP programs approx. 98% do not run on an EP64, even though a significant part of them physically fit

into 64K! And even if we suppose that a MICROTEAM card is connected to the EP64, Thus, increased to 576K, it will not run even 96% of the 128 programs ... since the F8-FB segments do not exist on such a machine. (Unfortunately, one of the shortcomings of ep128emu is that such „lukas" memory configurations can not be emulated, this can only be done in EP32.) After implementing F8-FB segments, many programs will still have problems with EXOS 2.0.

And what has not happened, But it would have been a big deal: if the planned super EP came out with EXOS 3.0, it would probably have been a lot of programs that would not have worked with it ... There would also have been problems when they released the winchester controller (which was discontinued due to unsold SZJA 88 (Accounting Program?)...)

After all this review, the next issue we will enter into details.

Book of life

BOOK OF LIFE is a role playing type of game. We get to explore different areas, find items, and fight enemies. We see the game in first person view. The goal is to find the Book of Life. Of course it won't be lying under the first tree. We have to fight our way through a great number of monsters, open doors and figure out passwords. The latter ones are usually answers to questions referring to biblical places or people. These answers can be found in underground labyrinths by reading tablets on the walls. The controlling of the game is detailed in the intro, but I'm going to explain it here too.

After the game loads we can choose to start a new game. Let's select this option now so we can start from the beginning. Sometimes you can see information about the area you are exploring or an item nearby at the top of the screen. In the top right corner you can see a compass. Use 'O' and 'P' to turn left and right respectively. By pressing 'Q' we can take a step forward if there is nothing in front of us. When going up or down we can climb by pressing ENTER.

Whenever we find an item its name will show up at the top of the screen as I mentioned above. We can pick it up by pressing any button from F1 to F4. This means that we can only carry a maximum number of four items at the same time. We can use them by pressing a button from F5 to F8. This obviously means that we press F5 to use the F1 item, F6 to use F2 and so on. In case we equip a sword using it will result in swinging it (you will see this as a splash on the screen). It is useful against enemies, but we can also use it to cut our way through bushes and cobweb. A battle axe can also be found in the game. It hits harder, but can be used more limitedly. If we equip a shield we are less likely to get hit (we don't have to use it, it works just by being equipped). Another useful item is the map. It's worth to carry it around all the time, because you can get around with it easily. Maybe a bit too easily... Consuming food is only effective if we are below full energy. We can check our energy level anytime next to the compass and take a look at our inventory by pressing 'I'.

Basically the game is about exploring all the areas. For this we need to unlock doors. There are three different types of doors; each of them needs a different type of key. Most interesting are the ones needing us to also answer a question. Of course in order to be able to explore all the areas we need to save our energy and defeat the enemies too. Beware! The further we get in the game the tougher these enemies get. There are some that can kill us with only a few hits. Good thing we can save our progress.

Pressing PAUSE / HOLD brings up the menu where you can save or load a game progress. You can only store nine saved progresses at once; each of them labeled by a number from one to nine.

So this is it basically. Writing a more detailed description would only take away from the excitement of actually playing the game, but here's a little tip to get you started in the game. Memorize the place where you start out! Now head west (the compass pointing left). Walk until you reach a line of rocks then head south! Lying next to one of the rocks will be a key. Take this back to where you started, open the door and now you have a sword.

As the designer of the program I'll now tell you a little about the technical side of the game. It runs in 256 color mode and so it uses low resolution graphics. Though in spite of this it looks nice in general; it's definitely worth to check it out on a colored screen. The game also runs fast enough for a program of this kind. As for programming the game giving it a three-dimensional feel was very interesting and the same goes for making in-game objects go brighter or darker when we move closer or away from them. You can see this effect on lower levels and it works especially well when enemies are closing in on you.

Baráth Endre

You have a program?
Have an Enterprise program!

ENTERPRISE
DevCompo #2

Programming competition

LIFE BEGINS AT 31

Competition begins: 1 December, 2016.
Deadline and start of voting: 16 May, 2017, 23:59:59
End of voting: 22 May, 2017. 23:59:59
Winners announced on 23 May, 2017

Categories:
One category is, every program will start in.

Winners:
The fee depends on the amount of money offered.

Best programs which have blocky graphics and/or have EnterMice support gets extra price.

You can ask the community of the Enterprise forum for help.

Conditions of participating:
A short video about the program (even uploaded to YouTube)
You can share the link on the Enterprise forum - http://www.enterpriseforever.com
- screenshots of the menu
- the program while operating
- the program itself

These can be all uploaded to the appropriate topic of the Enterprise forum. If you are having troubles with signing up, you can also send these to this e-mail address persa75@freemail.hu and we will upload them for you, but in this case please send us some information about the creators.
In order to enter the competition you need an at least 80% complete program.
It can only be called by a program which has not been published Enterprise.

If you submit a conversion it must also contain an Enterprise-related element.
You can also use ideas from other programs, but you have to note this in you own program.
One programmer/team can submit multiple programs.

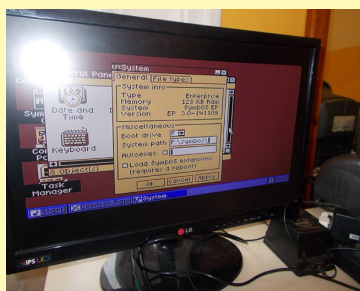**Your program must be able run on any Enterprise computer with any kind of hardware of software extensions.**
Further details about the conditions and the competition can be found below or on the Enterprise forum.

Countdown started… 42… 31…

Write a program for the ENTERPRISE!

Enterprise club, 19. november 2016
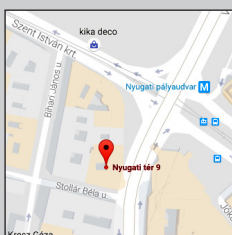
If you want to be an editor of ENTERPRESS Magazine, send an article, game description, game info, or anything related to the Enterprise computer!

You can send articles to this email address:

E-mail address:

info@enterpress.news.hu