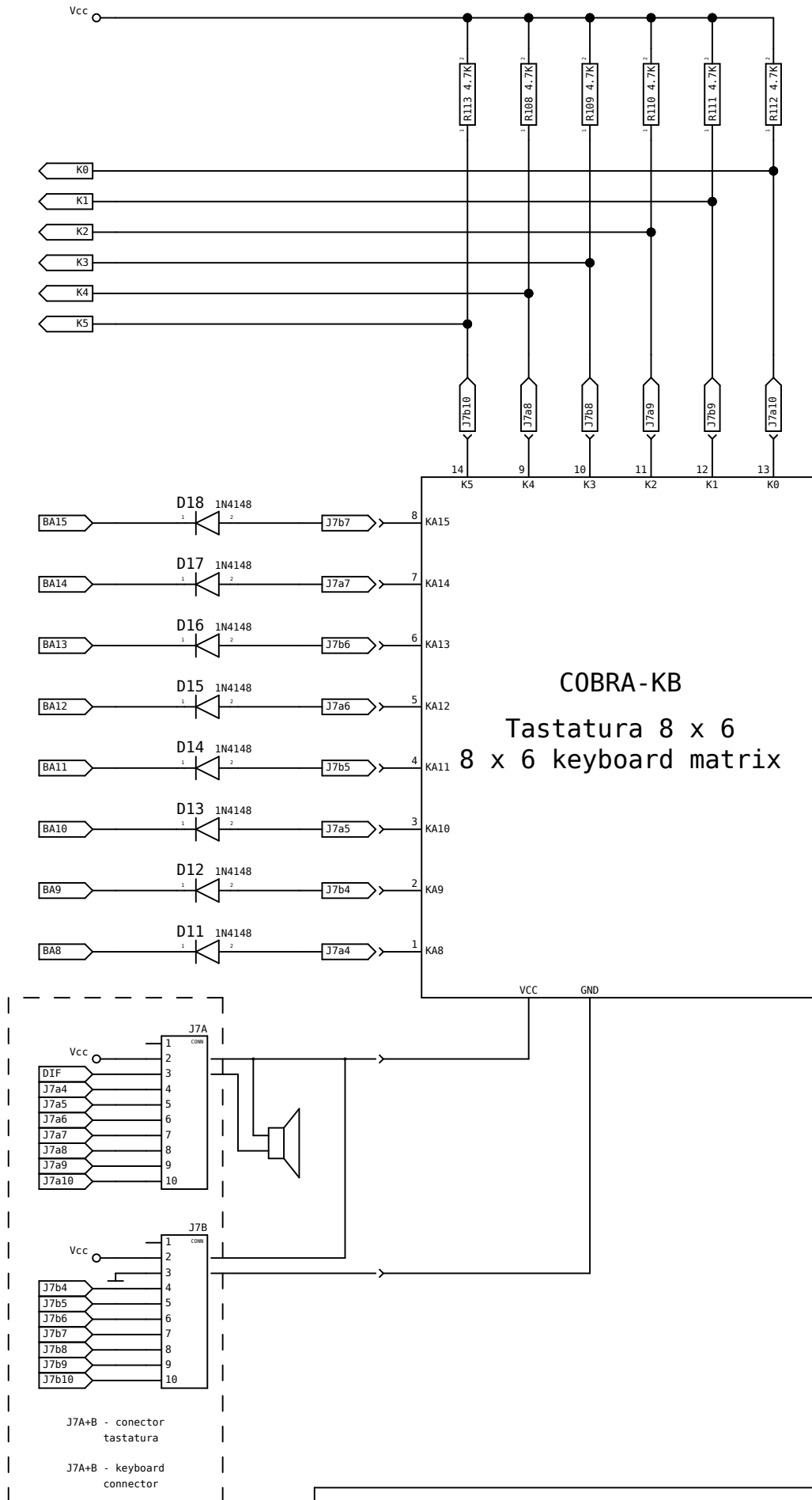


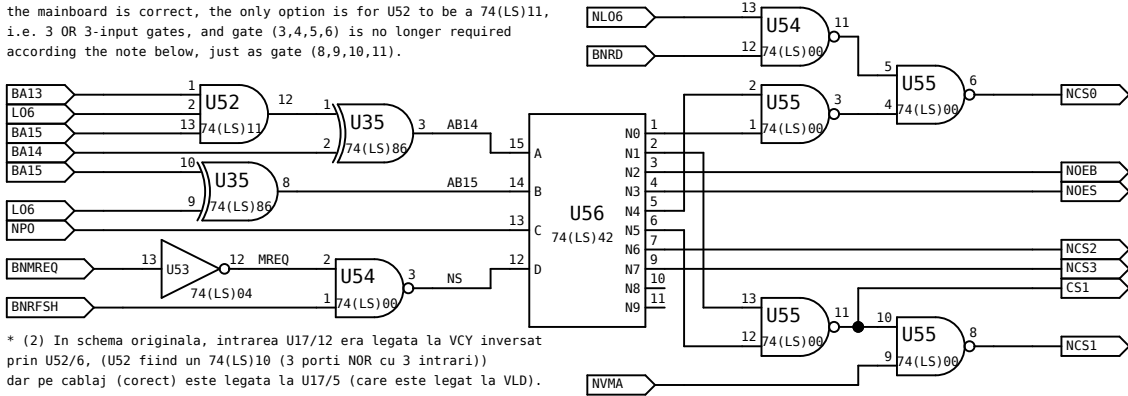
TITLE		μC CoBra - Arbitrul de memorie si logica de comanda	
		CoBra μC - Memory access prioritizer and command logic	
FILE:	CoBra	REVISION:	3 (original design, 64KB DRAM)
PAGE	1 OF 16	DRAWN BY:	ElectroNNix



TITLE μ C CoBra - Circuitul de conectare tastatura CoBra μ C - Keyboard interfacing circuit	
FILE: CoBra	REVISION: 3 (original design, 64KB DRAM)
PAGE 2 OF 16	DRAWN BY: ElectronNix

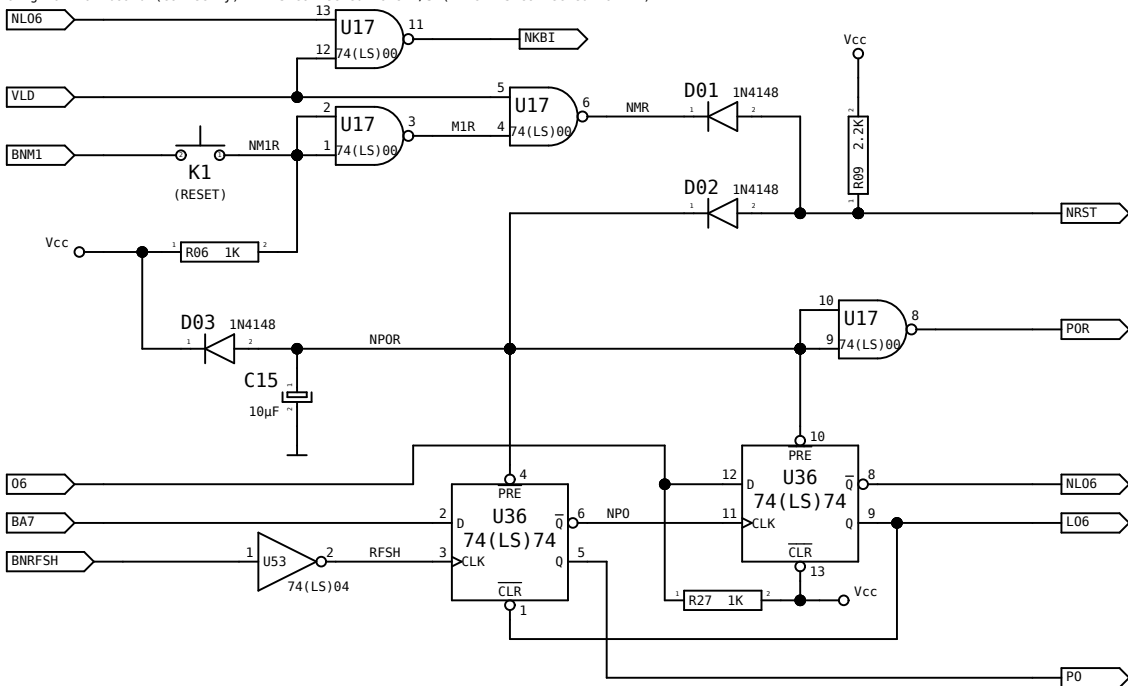
* (1) In schema originala, U52 era un 74(LS)10 (3 porti NOR cu 3 intrari), BA13, BA15 si L06 erau trecute prin U52/12,1,2,13 si apoi iesirea U52/12 era inversata prin poarta U52/8,9,10,11 folosita ca inversor, care mai departe era legata la U35/1. Pe cablajul original, U52 are portile (3,4,5,6) si (8,9,10,11) nefolosite (pinii lasati in gol) iar iesirea U52/12 este legata direct la intrarea U35/1. Considerind cablajul corect, singura optiune este ca U52 sa fie un 74(LS)11, adica 3 porti OR cu cite 3 intrari, iar poarta (3,4,5,6) nu mai e necesara conform notei de mai jos, ca si poarta (8,9,10,11).

* (1) In the original schematics, U52 was a 74(LS)10 (3 NOR 3-input gates), BA13, BA15 and L06 were passed through U52/12,1,2,13 and then the output U52/12 was inverted through gate U52/8,9,10,11 used as inverter, which was further connected to U35/1. On the original mainboard, U52 has the gates (3,4,5,6) and (8,9,10,11) unused (N.C. pins) and output U52/12 is connected directly to U35/1. Assuming the mainboard is correct, the only option is for U52 to be a 74(LS)11, i.e. 3 OR 3-input gates, and gate (3,4,5,6) is no longer required according to the note below, just as gate (8,9,10,11).



* (2) In schema originala, intrarea U17/12 era legata la VCY inversat prin U52/6, (U52 fiind un 74(LS)10 (3 porti NOR cu 3 intrari)) dar pe cablaj (corect) este legata la U17/5 (care este legat la VLD).

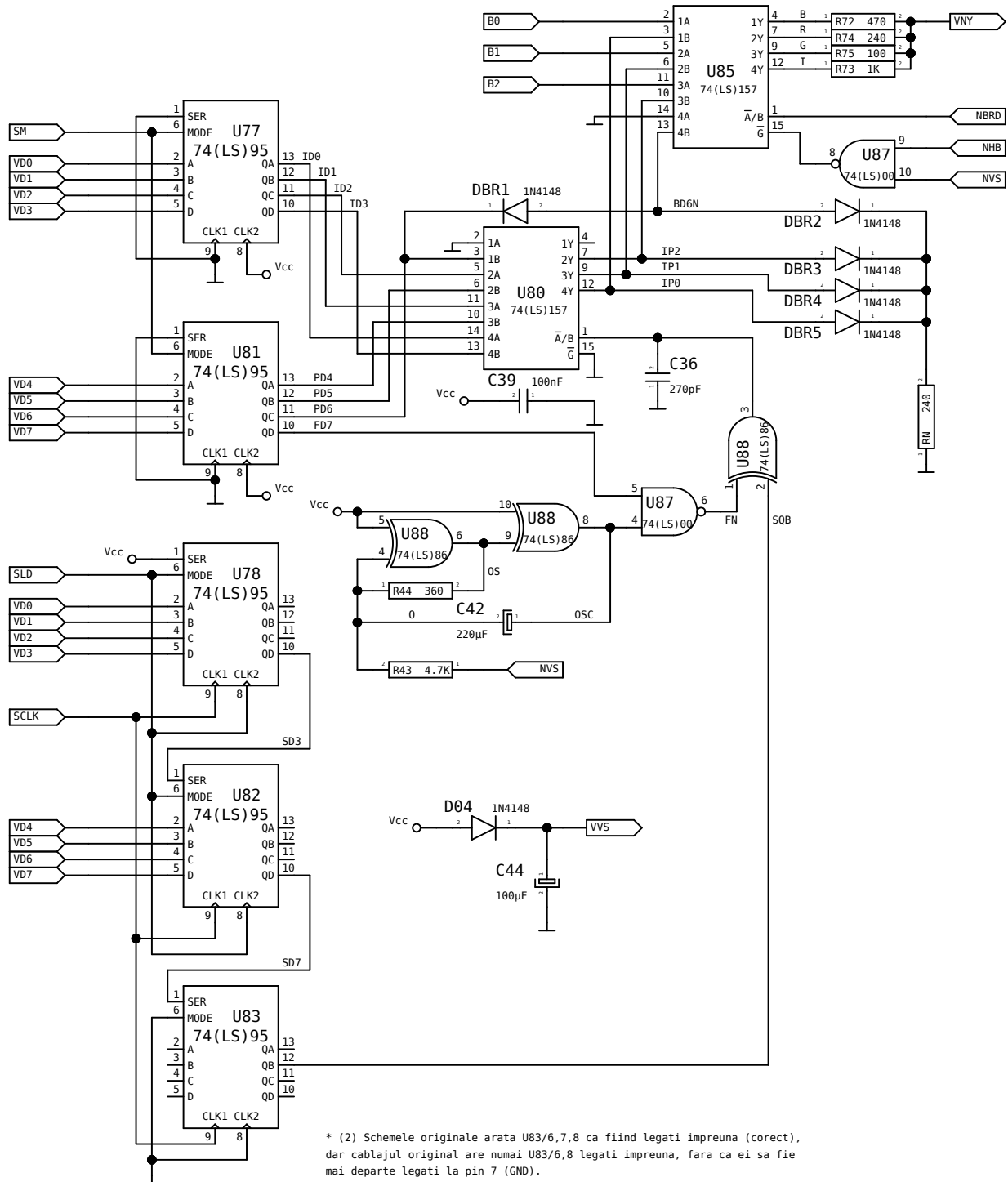
* (2) In the original schematics, input U17/12 was connected to VCY inverted through U52/6, (U52 being a 74(LS)10 (3 NOR 3-input gates)) but on the original mainboard (correctly) it is connected to U17/5 (which is connected to VLD).



TITLE		µC CoBra - Circuitul de configurare si selectie CoBra µC - Configurator and selector circuit	
FILE:	CoBra	REVISION:	3 (original design, 64KB DRAM)
PAGE	3 OF 16	DRAWN BY:	ElectroNnix

* (1) In schema originala, diodele DBR1-5 si rezistenta RN sint desenate (cu toate ca diodele nu sint denumite) dar pe cablajul original nu sint prevazute, iar U85/13 este legat direct la U80/3. Ca urmare, cablajul original nu permitea functia de BRIGHT. Am modificat cablajul adaugand gauri pentru DBR1-5 si RN si intrerupind deci legatura directa dintre U85/13 si U80/3.

* (1) In the original schematics, diodes DBR1-5 and resistor RN are drawn (although the diodes don't have names) but on the original mainboard they are not placed, and U85/13 is directly connected to U80/3. Therefore, the original mainboard would not allow the BRIGHT function. I have modified the mainboard layout by adding mounting holes for DBR1-5 and RN and therefore interrupting the direct connection between U85/13 and U80/3.



* (2) Schemele originale arata U83/6,7,8 ca fiind legati impreuna (corect), dar cablajul original are numai U83/6,8 legati impreuna, fara ca ei sa fie mai departe legati la pin 7 (GND). Am modificat cablajul placii de baza pentru a corespunde schemei originale. (Vezi legatura #25 fata 2)

* (2) The original schematics show U83/6,7,8 connected together (correctly), but the original mainboard layout only has U83/6,8 connected together without them being further connected to pin 7 (GND). I have modified the mainboard layout to match the original schematics. (See rewiring #25 side 2)

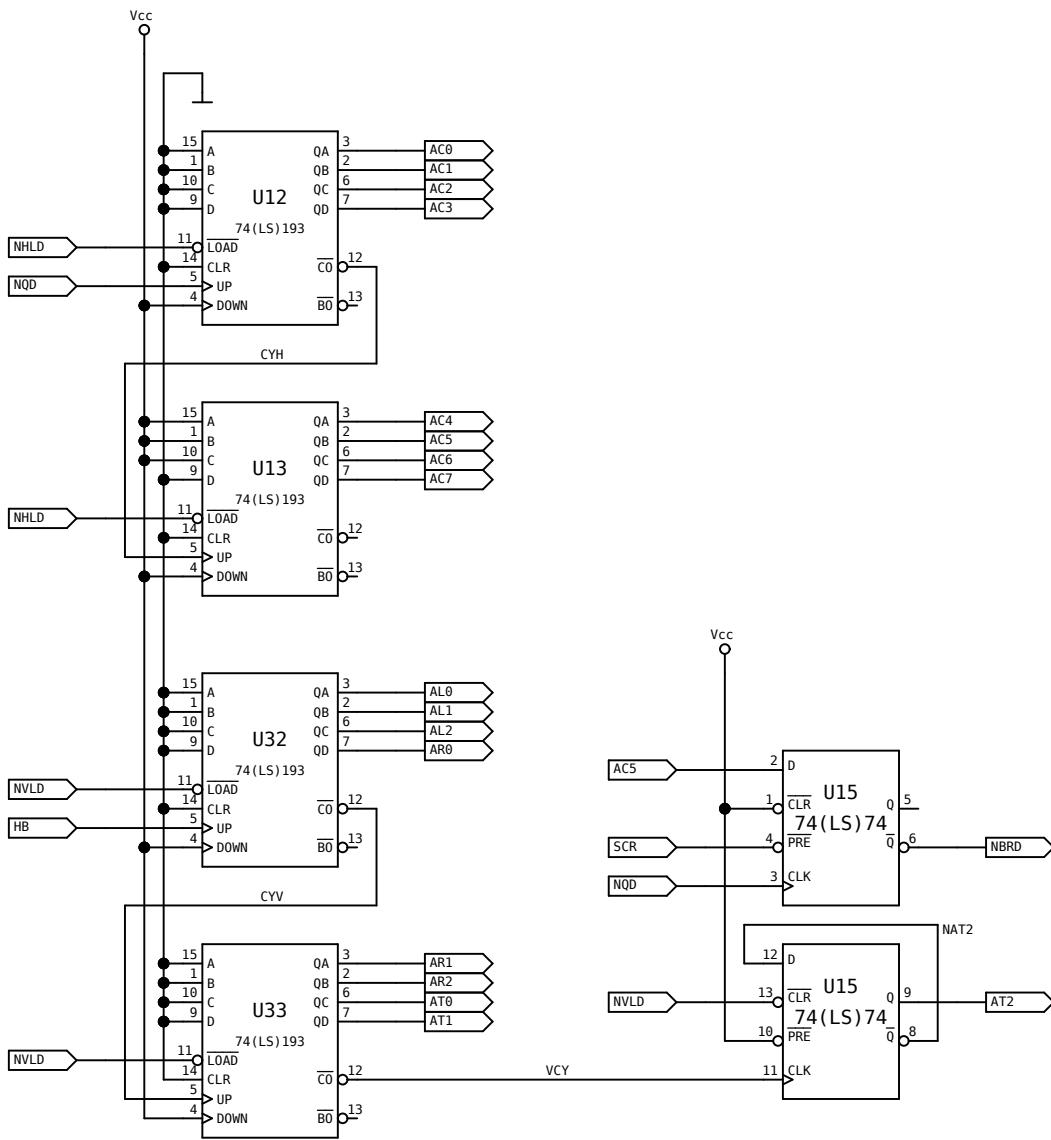
TITLE μ C CoBra - Circuitul formator semnal video
CoBra μ C - Video signal generator circuit

FILE: CoBra

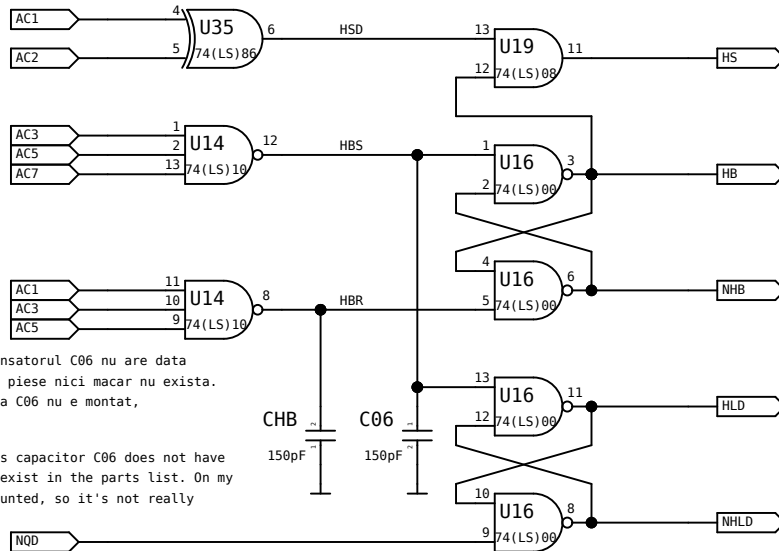
REVISION: 3 (original design, 64KB DRAM)

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DRAWN BY: ElectroNnix



TITLE		μC CoBra - Circuitul de generare adrese video	
		CoBra μC - Video address generator circuit	
FILE:	CoBra	REVISION:	3 (original design, 64KB DRAM)
PAGE	5 OF 16	DRAWN BY:	ElectroNNix

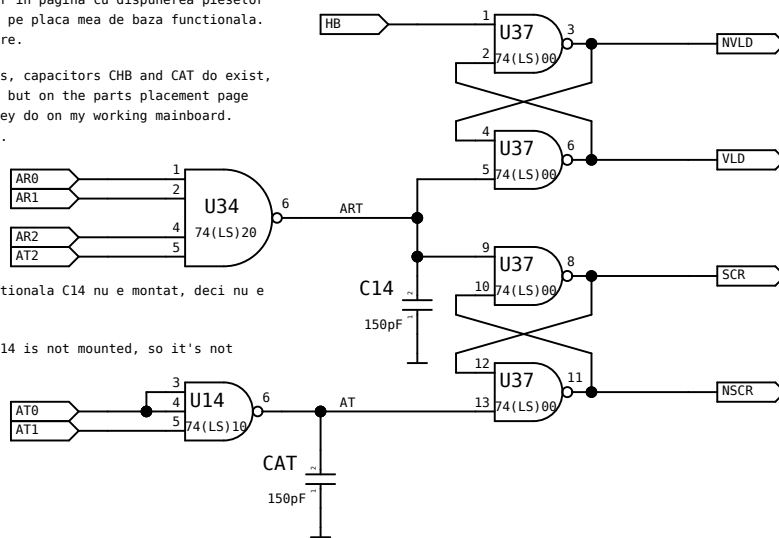


* (1) In schema originala condensatorul C06 nu are data nici o valoare, iar in lista de piese nici macar nu exista. Pe placa mea de baza functionala C06 nu e montat, deci nu e intr-adevar necesar.

* (1) In the original schematics capacitor C06 does not have any value, and it doesn't even exist in the parts list. On my working mainboard C06 is not mounted, so it's not really required.

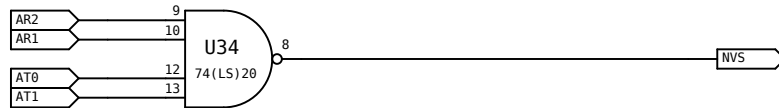
* (2) In schema originala condensatoarele CHB si CAT exista, exista si in lista de piese, dar in pagina cu dispunerea pieselor ele nu exista si nu exista nici pe placa mea de baza functionala. Deci nu sint intr-adevar necesare.

* (2) In the original schematics, capacitors CHB and CAT do exist, they also do in the parts list, but on the parts placement page they don't exist and neither they do on my working mainboard. So they are not really required.

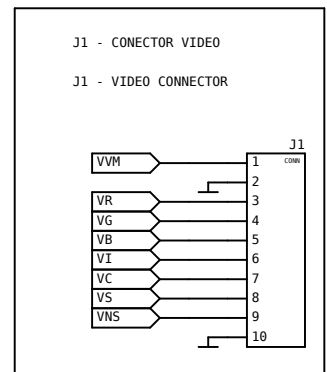
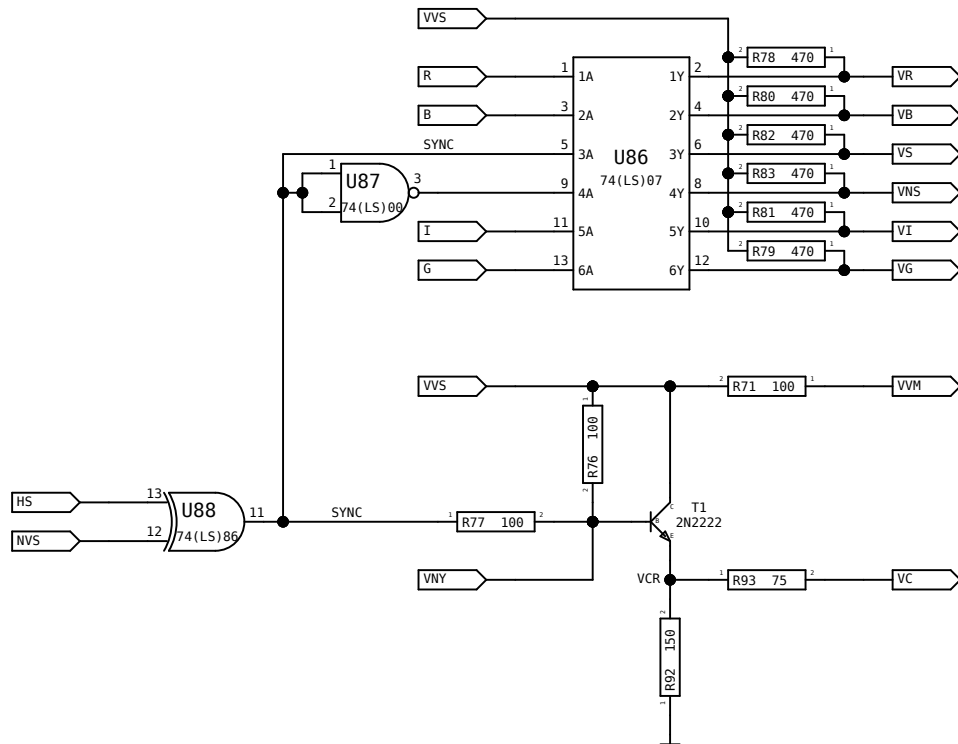


* (3) Pe placa mea de baza functionala C14 nu e montat, deci nu e intr-adevar necesar.

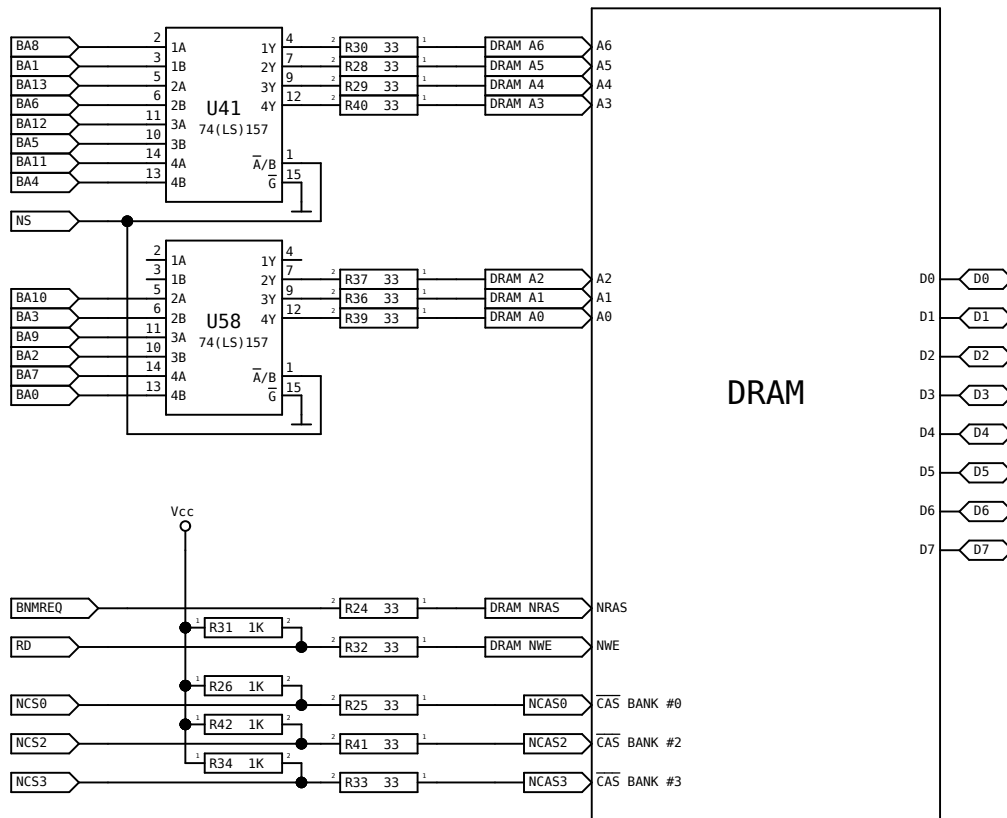
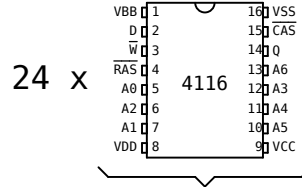
* (3) On my working mainboard C14 is not mounted, so it's not really required.



TITLE		μC CoBra - Circuitul generator de sincroimpulsuri CoBra μC - Video sync pulses generator circuit	
FILE:	CoBra	REVISION:	3 (original design, 64KB DRAM)
PAGE	6 OF 16	DRAWN BY:	ElectroNNix



TITLE		μC CoBra - Circuitul de interfata cu monitorul TV CoBra μC - TV monitor interfacing circuit	
FILE:	CoBra	REVISION:	3 (original design, 64KB DRAM)
PAGE	7 OF 16	DRAWN BY:	ElectroNNix



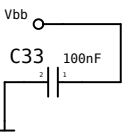
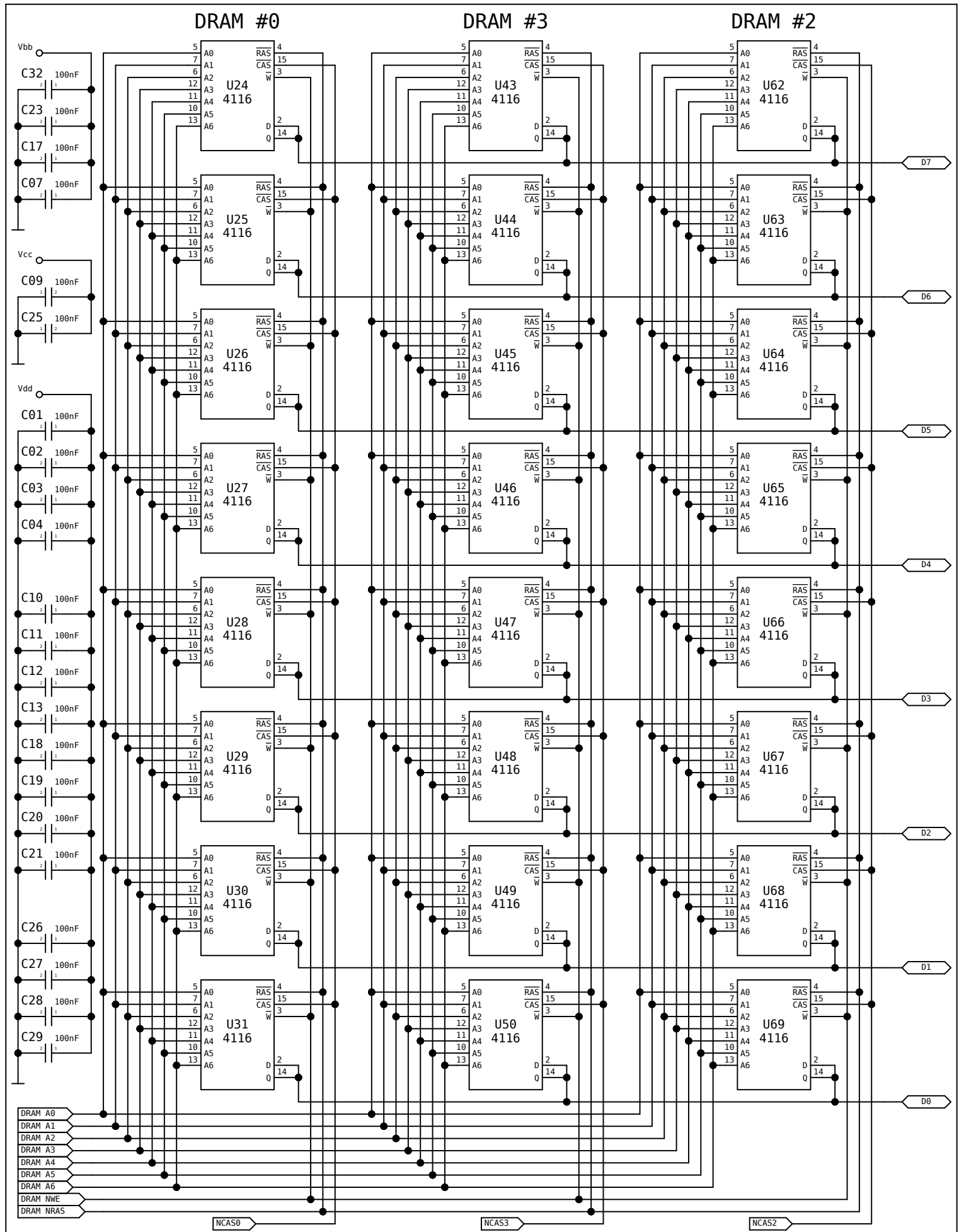
TITLE μ C CoBra - Circuitul memoriei dinamice - pag.1/2
CoBra μ C - Dynamic memory circuit - pag.1/2

FILE: CoBra

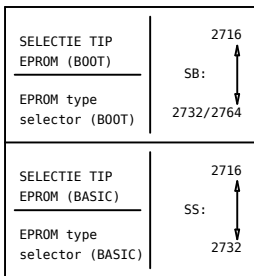
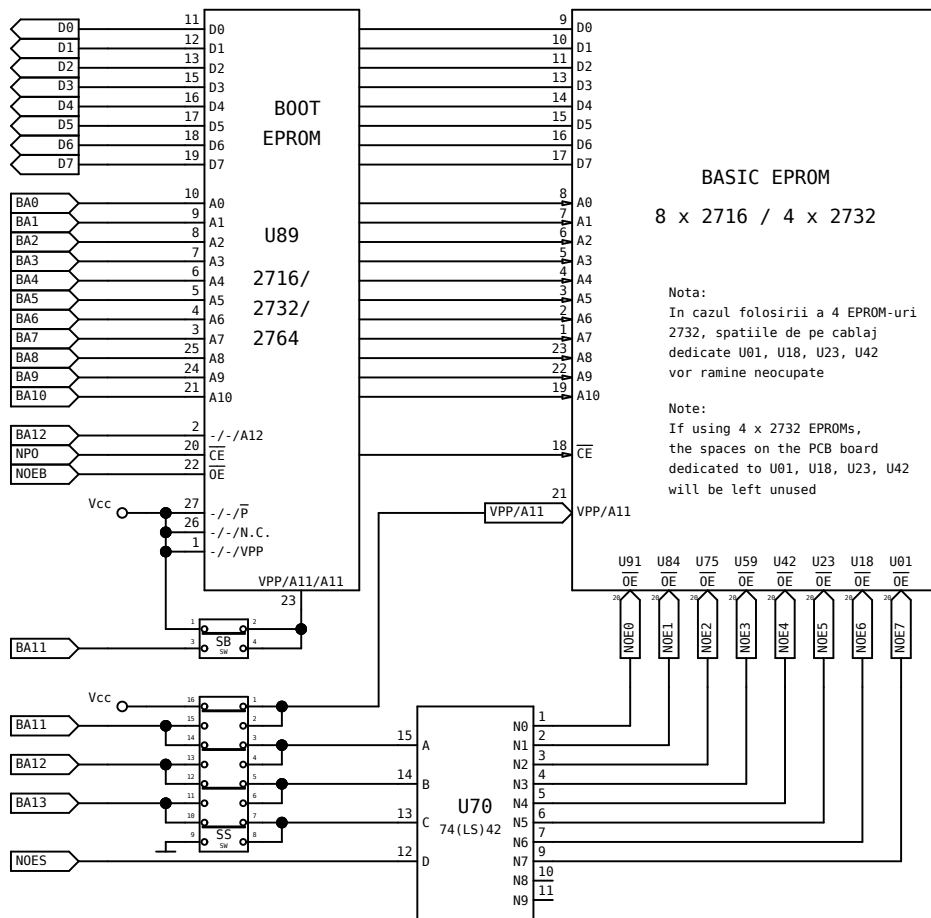
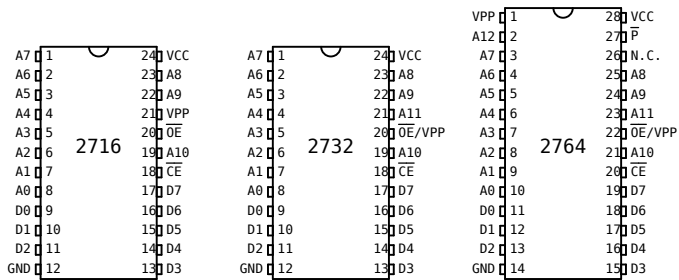
REVISION: 3 (original design, 64KB DRAM)

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DRAWN BY: ElectronNix



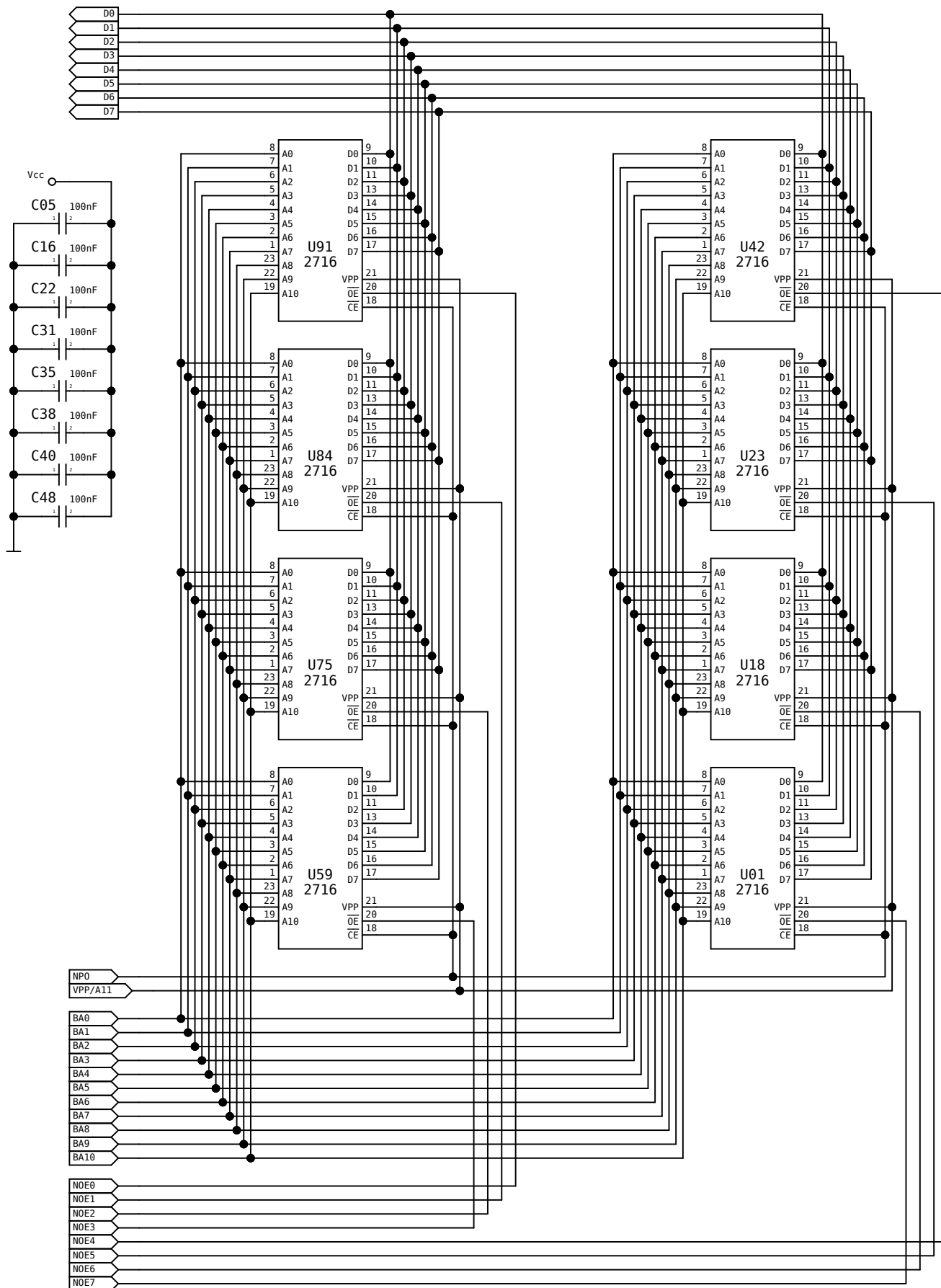
TITLE		μC CoBra - Circuitul memoriei dinamice - pag.2/2	
		CoBra μC - Dynamic memory circuit - pag.2/2	
FILE:	CoBra	REVISION:	3 (original design, 64KB DRAM)
PAGE	9 OF 16	DRAWN BY:	ElectroNnix



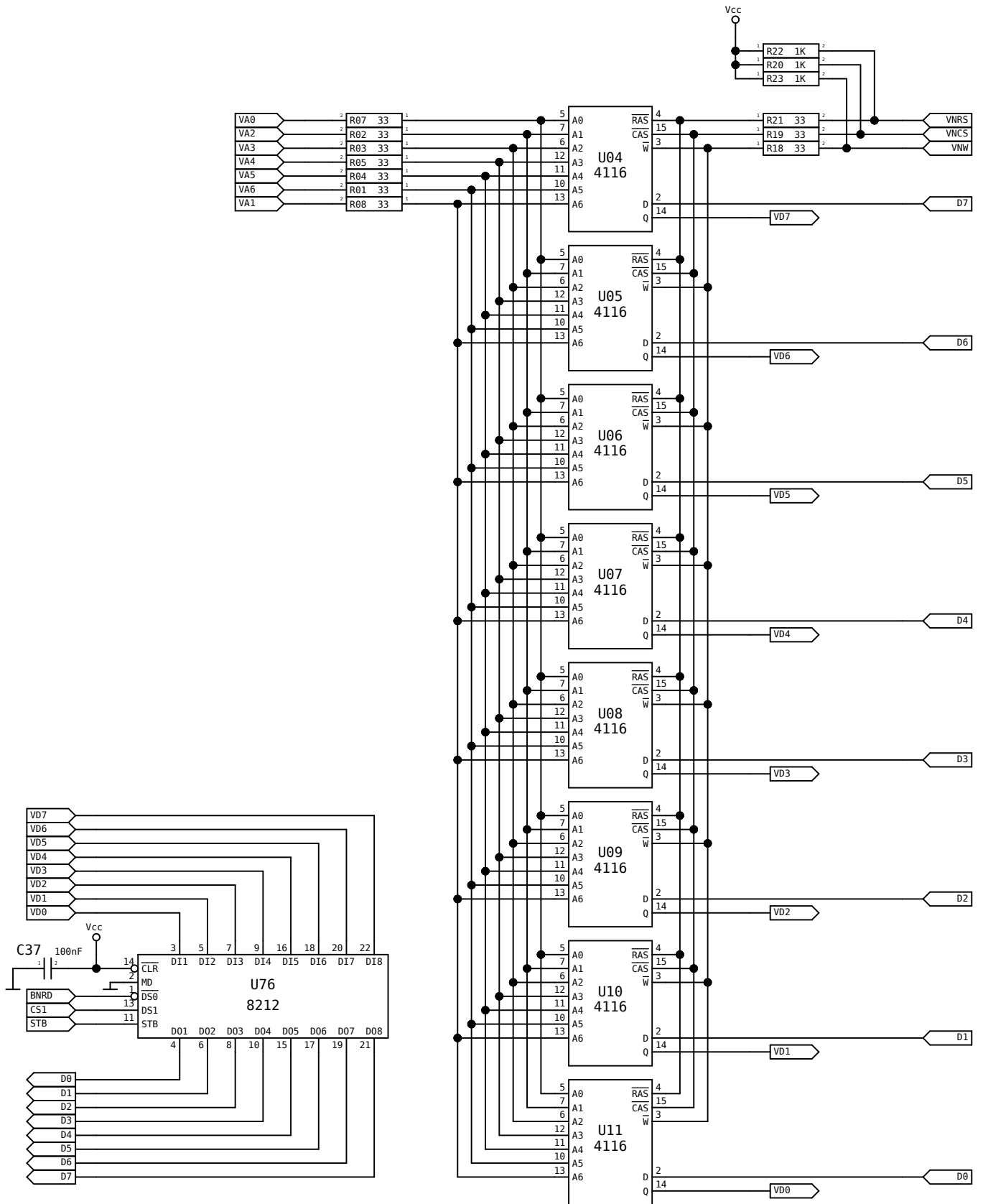
Nota:
In schema originala, pentru EPROM BOOT era trecut si 27128, dar de fapt 27128 nu poate functiona aici deoarece are linia de adresa A13 la pinul 26, care pe cablajul original este legata la VCC (ca si in schema originala si in schema de fata).

Note:
In the original schematics, for BOOT EPROM was also listed 27128, but actually 27128 cannot work here because it has the address line A13 connected to pin 26, which on the original mainboard is connected to VCC (just as in the original schematic and in the present one).

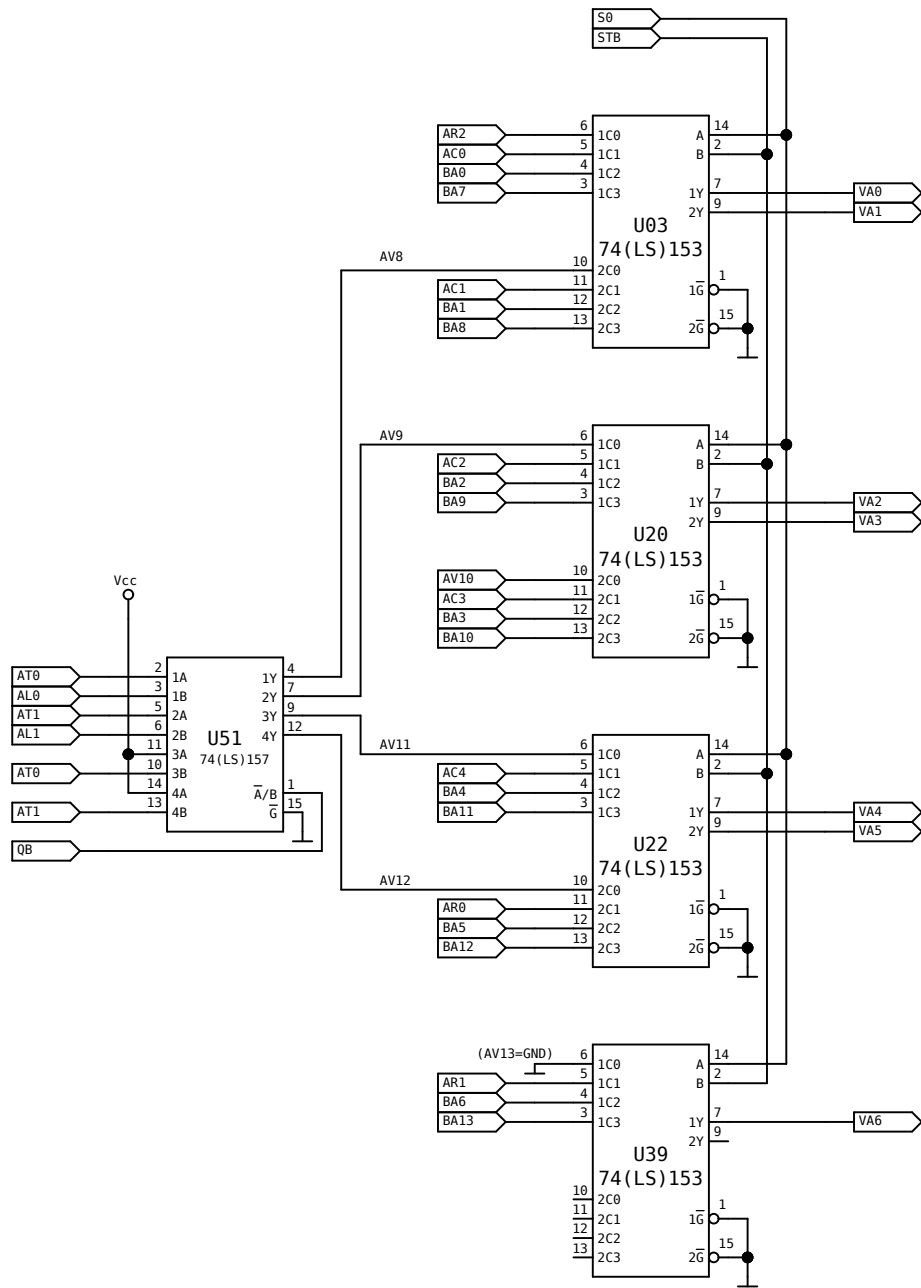
TITLE		µC CoBra - Circuitul memoriei nevolatile - pag.1/2	
		CoBra µC - Read-only memory circuit - pag.1/2	
FILE:	CoBra	REVISION:	3 (original design, 64KB DRAM)
PAGE	10 OF 16	DRAWN BY:	ElectroNNix



TITLE		μC CoBra - Circuitul memoriei nevolatile - pag.2/2	
		CoBra μC - Read-only memory circuit - pag.2/2	
FILE:	CoBra	REVISION:	3 (original design, 64KB DRAM)
PAGE	11 OF 16	DRAWN BY:	ElectroNnix



TITLE		μC CoBra - Circuitul memoriei video CoBra μC - Video memory circuit	
FILE:	CoBra	REVISION:	3 (original design, 64KB DRAM)
PAGE	12 OF 16	DRAWN BY:	ElectroNNix



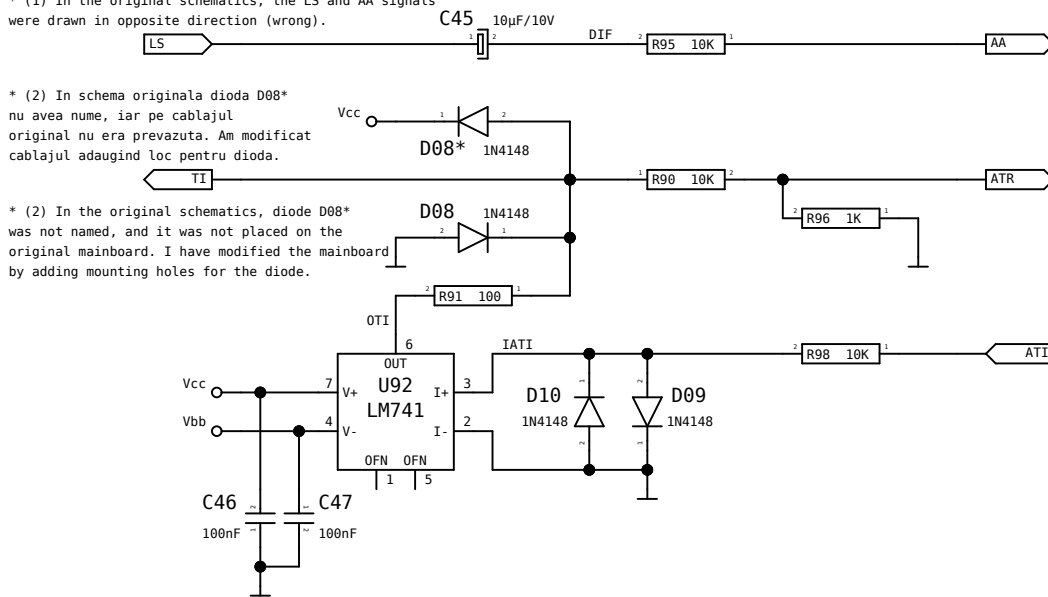
TITLE		μC CoBra - Circuitul de multiplexare adrese video CoBra μC - Video address multiplexer circuit	
FILE:	CoBra	REVISION:	3 (original design, 64KB DRAM)
PAGE	13 OF 16	DRAWN BY:	ElectroNNix

* (1) In schema originala semnalele LS si AA erau desenate in sens opus (gresit).

* (1) In the original schematics, the LS and AA signals were drawn in opposite direction (wrong).

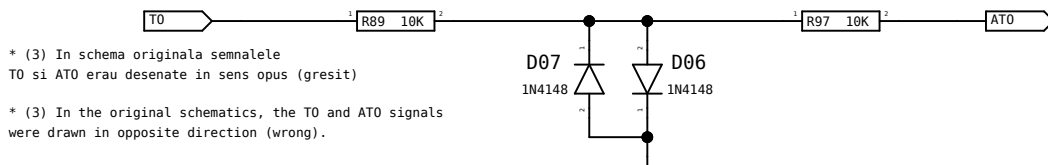
* (2) In schema originala dioda D08* nu avea nume, iar pe cablajul original nu era prevazuta. Am modificat cablajul adaugind loc pentru dioda.

* (2) In the original schematics, diode D08* was not named, and it was not placed on the original mainboard. I have modified the mainboard by adding mounting holes for the diode.

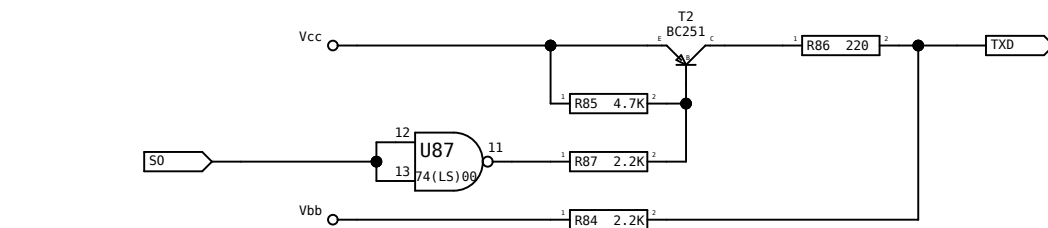


* (3) In schema originala semnalele T0 si ATO erau desenate in sens opus (gresit)

* (3) In the original schematics, the T0 and ATO signals were drawn in opposite direction (wrong).

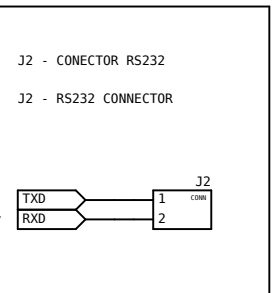
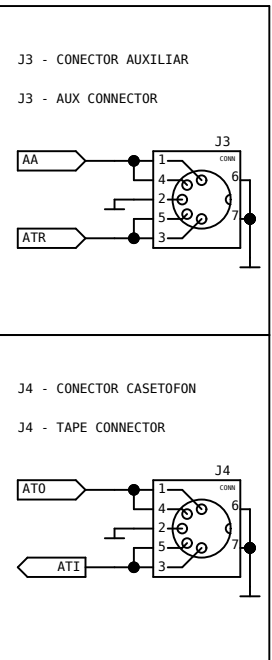


* (4) In schema originala R88 nu exista, nu exista nici in lista de piese, dar pe cablajul original este prevazuta.
 * (4) In the original schematics, R88 does not exist, it does not exist in the parts list either, but it is placed on the original mainboard.



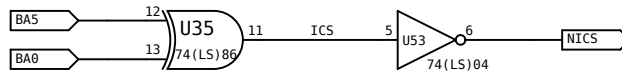
* (5) Pe cablajul original, poarta U87/13,12,11 era intercalata ca inversor între U85/12 si U86/11, inversind semnalul I de la U85 la U86 (gresit). Am modificat deci cablajul conform acestei scheme (originale, corecte). (Vezi taieturile #1 si #2 de pe fata 1, #20 si #24 de pe fata 2, si legaturile #18, #20 si #21 de pe fata 2)

* (5) On the original PCB, gate U87/13,12,11 was placed as inverter between U85/12 and U86/11, inverting the signal I from U85 to U86 (wrong). I have therefore changed the mainboard layout according to the original (correct) schematic (shown here). (See cuts #1 & #2 on side 1, #20 & #24 on side 2, and rewirings #18, #20 & #21 on side 2)



TITLE		µC CoBra - Circuite de adaptare nivel CoBra µC - Voltage-level adapter circuits	
FILE:	CoBra	REVISION:	3 (original design, 64KB DRAM)
PAGE	14 OF 16	DRAWN BY:	ElectroNNix

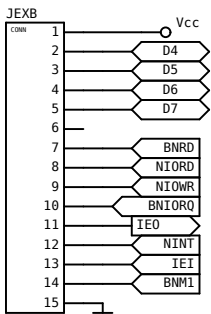
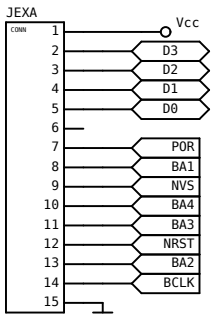
* (1) Pe cablajul original JEXA/8 este legat in mod gresit la BA7.
De asemenea, manualul original avea JEXA/8 listat ca fiind legat la BA7. Am modificat deci cablajul si schema de fata legind JEXA/8 la BA1 (corect).
(Vezi taietura #11 fata 1, legatura #22 fata 2)



* (1) On the original mainboard, JEXA/8 was connected (the wrong way) to BA7. Also the original hardware manual had JEXA/8 listed as being connected to BA7. I have therefore changed the mainboard layout and this schematic by connecting JEXA/8 to BA1 (correctly).
(See cut #11 side 1, rewiring #22 side 2)

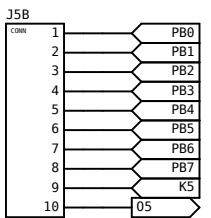
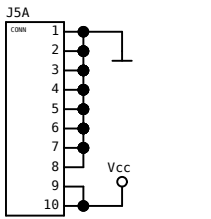
JEXA+B - CONECTOR INTERFATA FLOPPY DISK

JEXA+B - FLOPPY DISK INTERFACE CONNECTOR



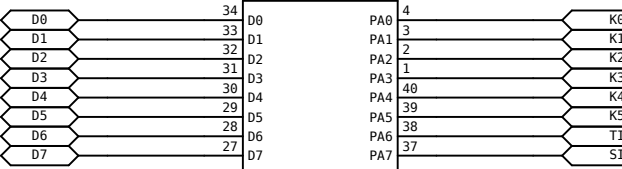
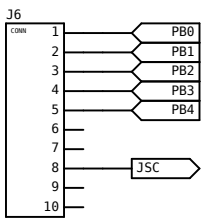
J5A+B - CONECTOR PORT INTRARE PE 8 BITI ADRESA 0DFH

J5A+B - 8-BIT INPUT PORT 0DFH CONNECTOR



J6 - CONECTOR JOYSTICK KEMPSTON

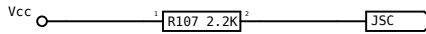
J6 - KEMPSTON JOYSTICK CONNECTOR



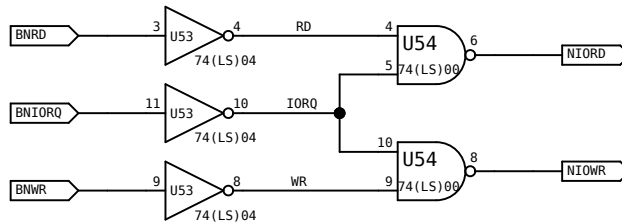
* (2) Pe cablajul original JEXA/9 era legat la o via care nu ducea nicaieri mai departe. In schemele originale JEXA/9 era legat la un semnal SI/TRG3 care nu exista nicaieri in alta parte. Pe placa mea functionala JEXA/9 este legat la NVS.
(Vezi legatura #24 fata 2)

* (2) On the original mainboard, JEXA/9 was connected to a via which was not further leading anywhere. In the original schematics, JEXA/9 was connected to a signal "SI/TRG3" which did not exist anywhere else. On my working mainboard, JEXA/9 is connected to NVS.
(See rewiring #24 side 2)

* (3) Pe cablajul original, R107 este legata in mod gresit la GND in loc de VCC.
(Vezi taietura #13 fata 1, legatura #19 fata 2)

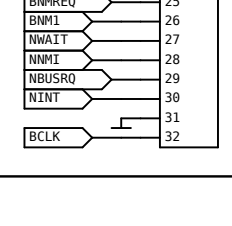
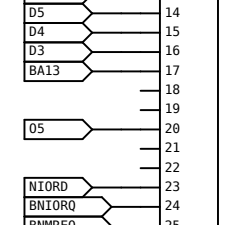
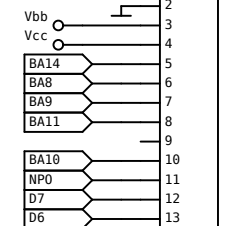
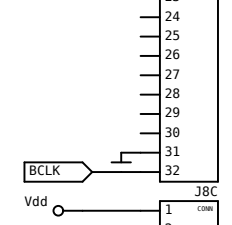
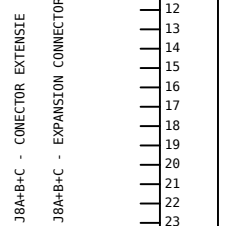
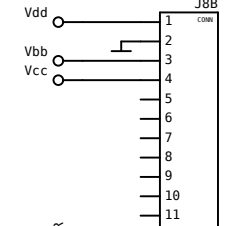
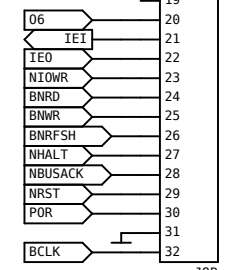
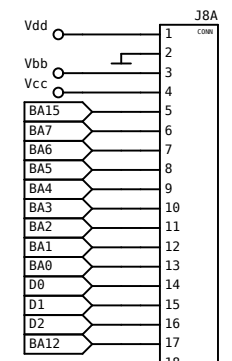


* (3) On the original mainboard, R107 is wrongfully connected to GND instead of VCC.
(See cut #13 side 1, rewiring #19 side 2)



* (4) Cablajul original avea JSC conectat la J6/pin10 dar manualul original avea JSC listat la J6/pin8. Am schimbat cablajul placii de baza pentru a corespunde manualului.
(Vezi taietura #5 fata 1, legatura #1 fata 1)

* (4) The original mainboard had JSC connected to J6/pin10 but the original manual had JSC listed at J6/pin8. I changed the mainboard layout to match the original manual.
(See cut #5 side 1, rewiring #1 side 1)



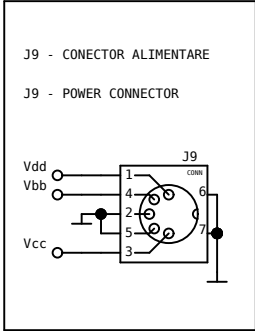
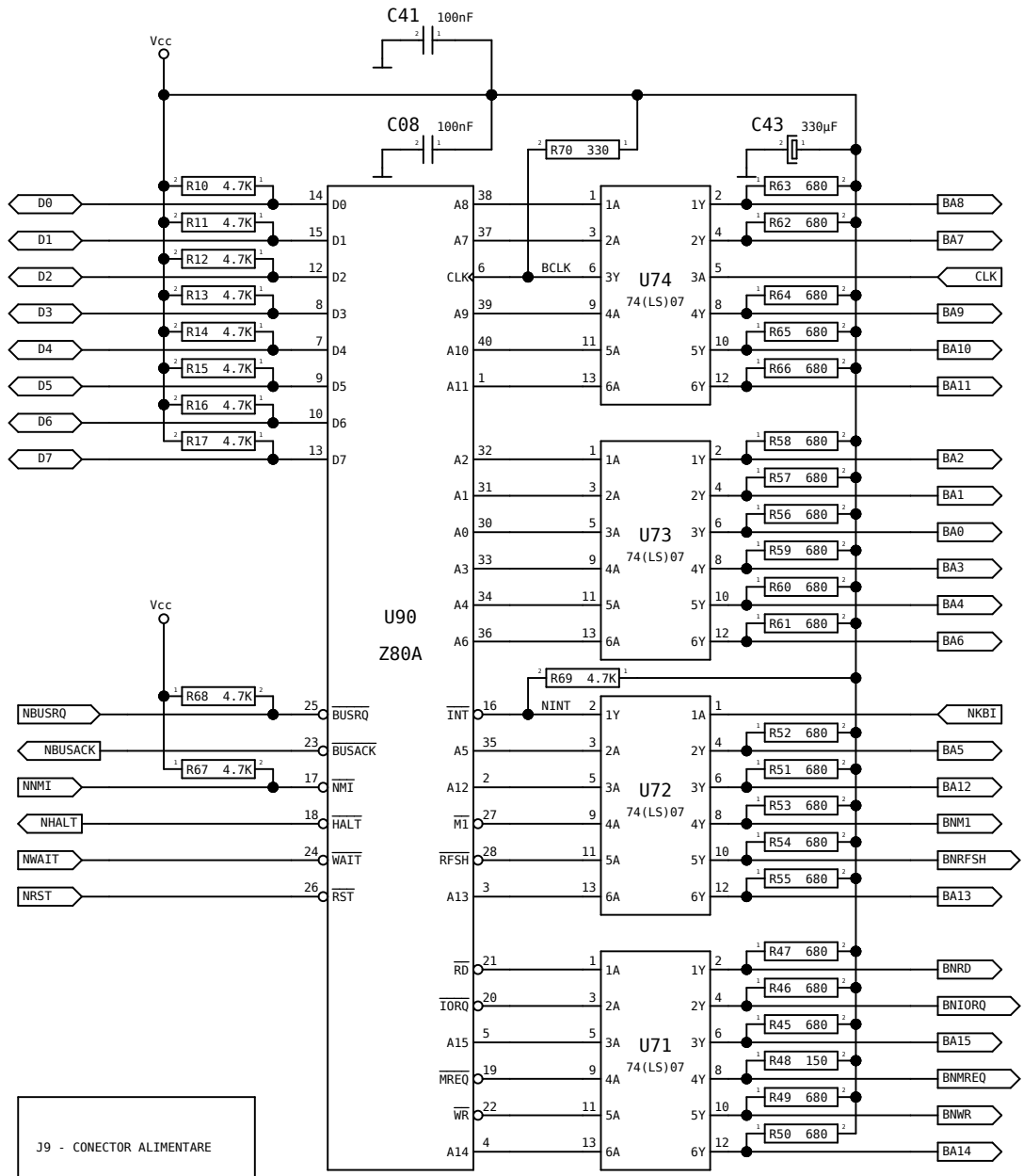
TITLE μ C CoBra - Interfete
CoBra μ C - Interfaces

FILE: CoBra
PAGE 15 OF 16

REVISION: 3 (original design, 64KB DRAM)
DRAWN BY: ElectronNix

* (1) In schema originala, U74/6 era legat (gresit) la U90/24, dar corect este ca U90/24 sa fie legat la NWAIT, U74/6 (BCLK) sa fie legat la U90/6 (CLK procesor) si U74/5 sa fie legat la CLK

* (1) In the original schematics, U74/6 was connected (wrong) to U90/24, but correct is for U90/24 to be connected to NWAIT, for U74/6 (BCLK) to be connected to U90/6 (CPU clock) and for U74/5 to be connected to CLK



* (2) In schema originala, R48 era plasata pe pagina cu circuitul memoriei dinamice.

* (2) In the original schematics, R48 was drawn on the page with the dynamic memory circuit.

TITLE		µC CoBra - Unitatea centrala CoBra µC - Central Processing Unit	
FILE:	CoBra	REVISION:	3 (original design, 64KB DRAM)
PAGE	16 OF 16	DRAWN BY:	ElectroNNix