

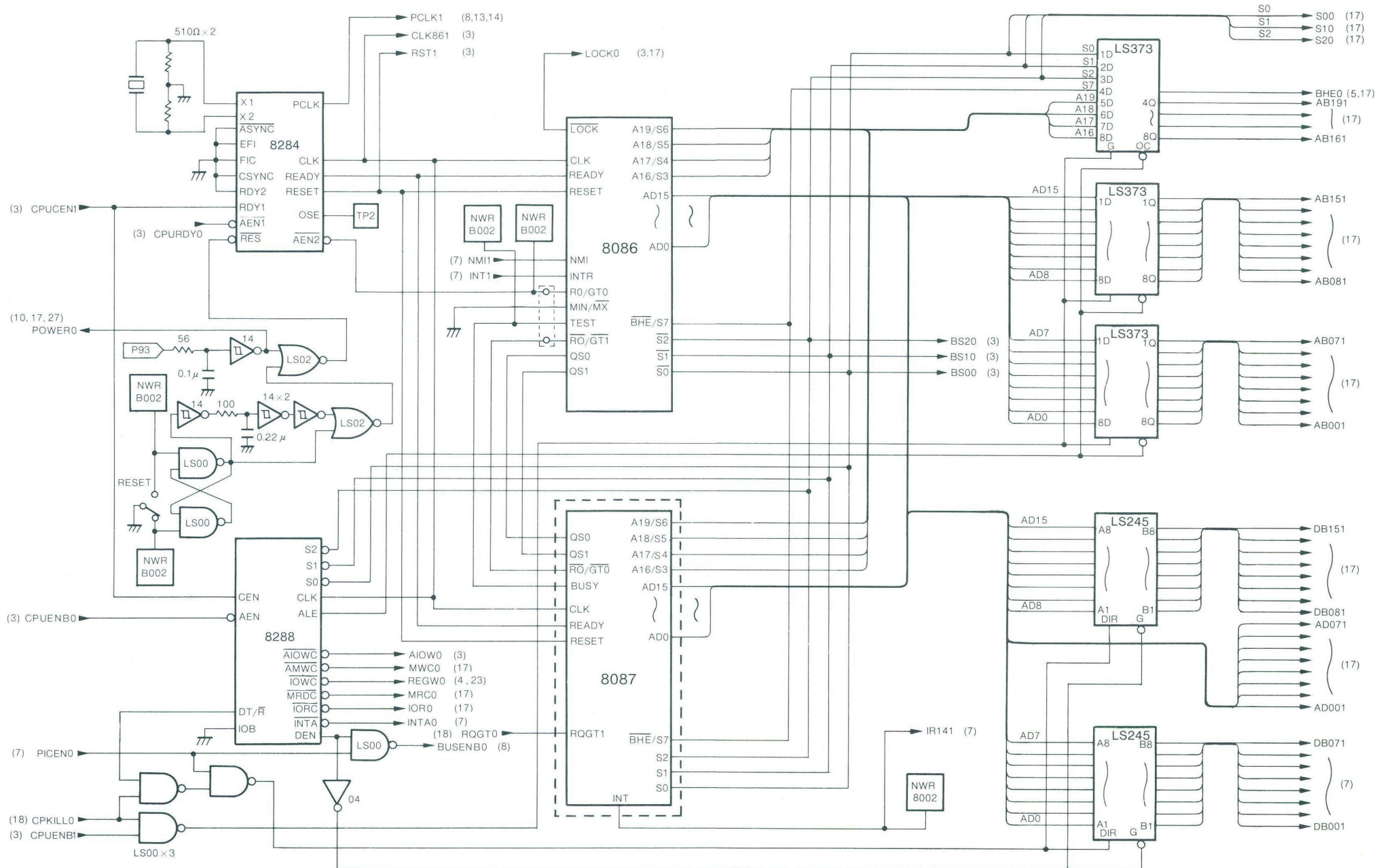
## NEC PC9801 16 bit personal computer schematics

PC9801 had been dominating Japanese PC market since 1982 until IBM PC gained the top market share in 1995.

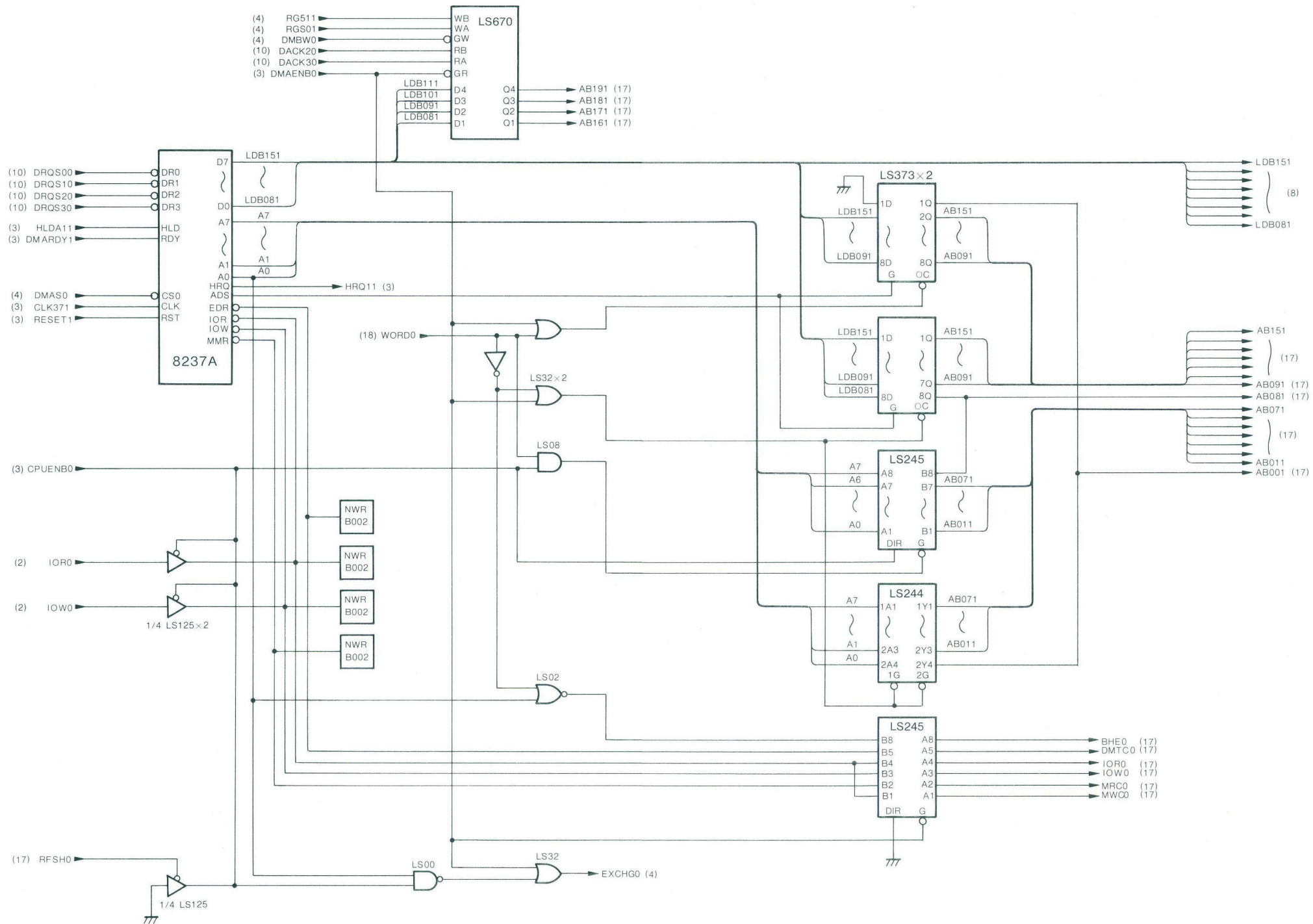
To ease tracing signals, a sheet number enclosed by parenthesis inside the functional block such as "Motherboard" is attached to each signal name.

Example: "(3) CPUCEN1"; Signal, CPUCEN1, comes from sheet number 3, "S00 (17)"; Signal, S00, jumps to sheet number 17.

The last numeric of signal name exhibits active high (1) and active low (0).

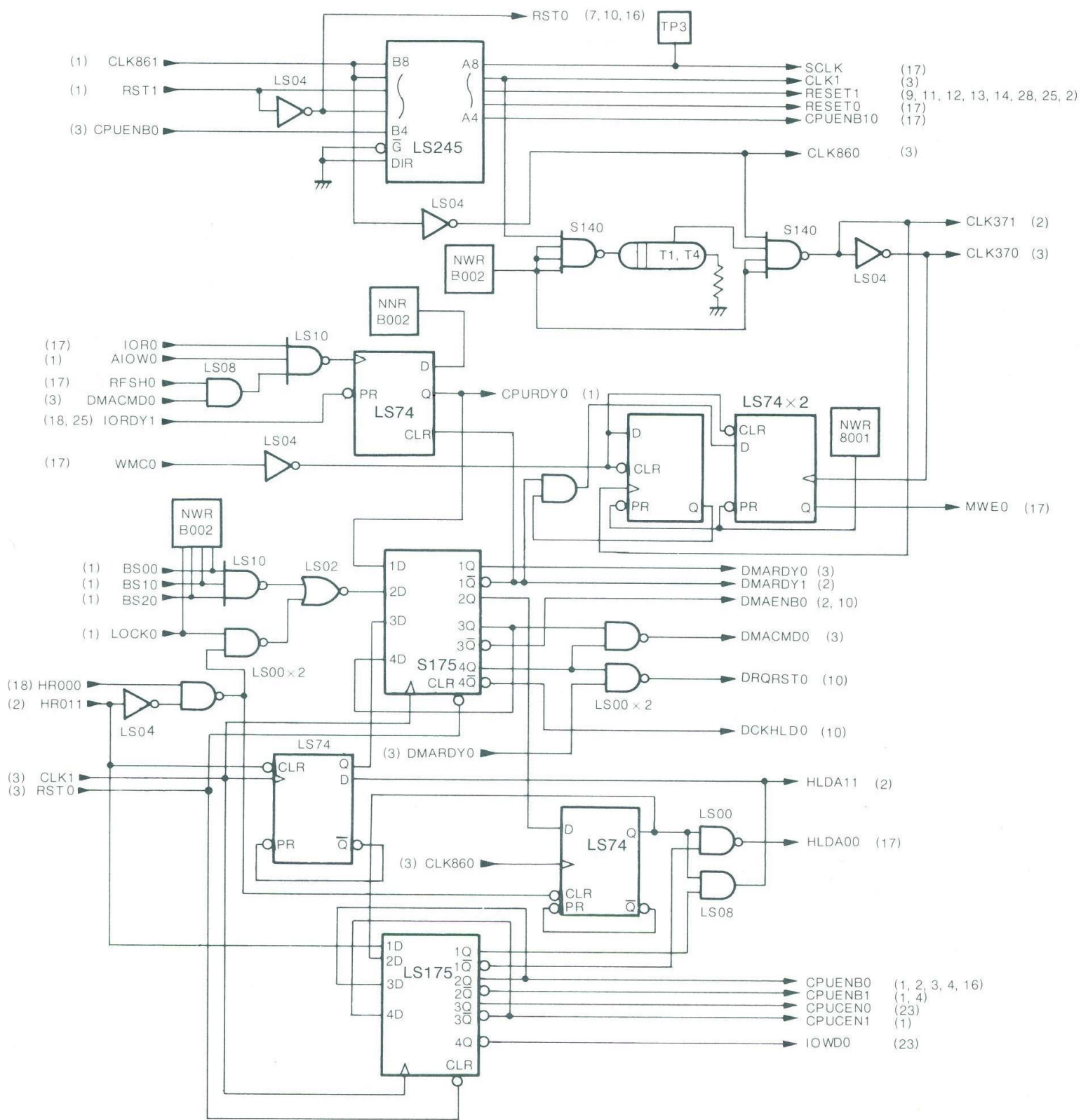


**Motherboard (1) Central Processing Unit (8086), Floating Point co-Processor (8087)**

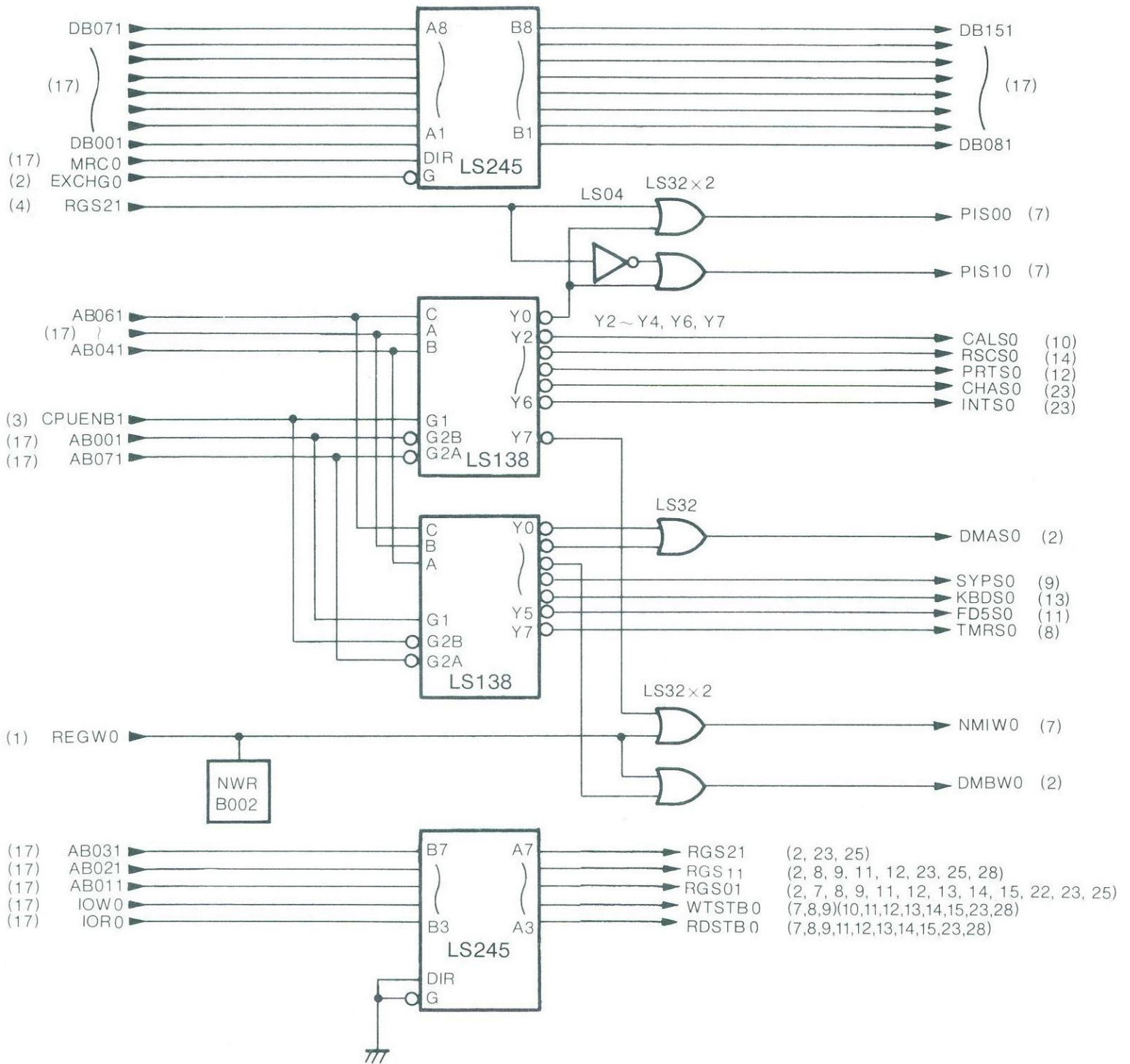


**Motherboard (2) Direct Memory Access (8237) control 1**





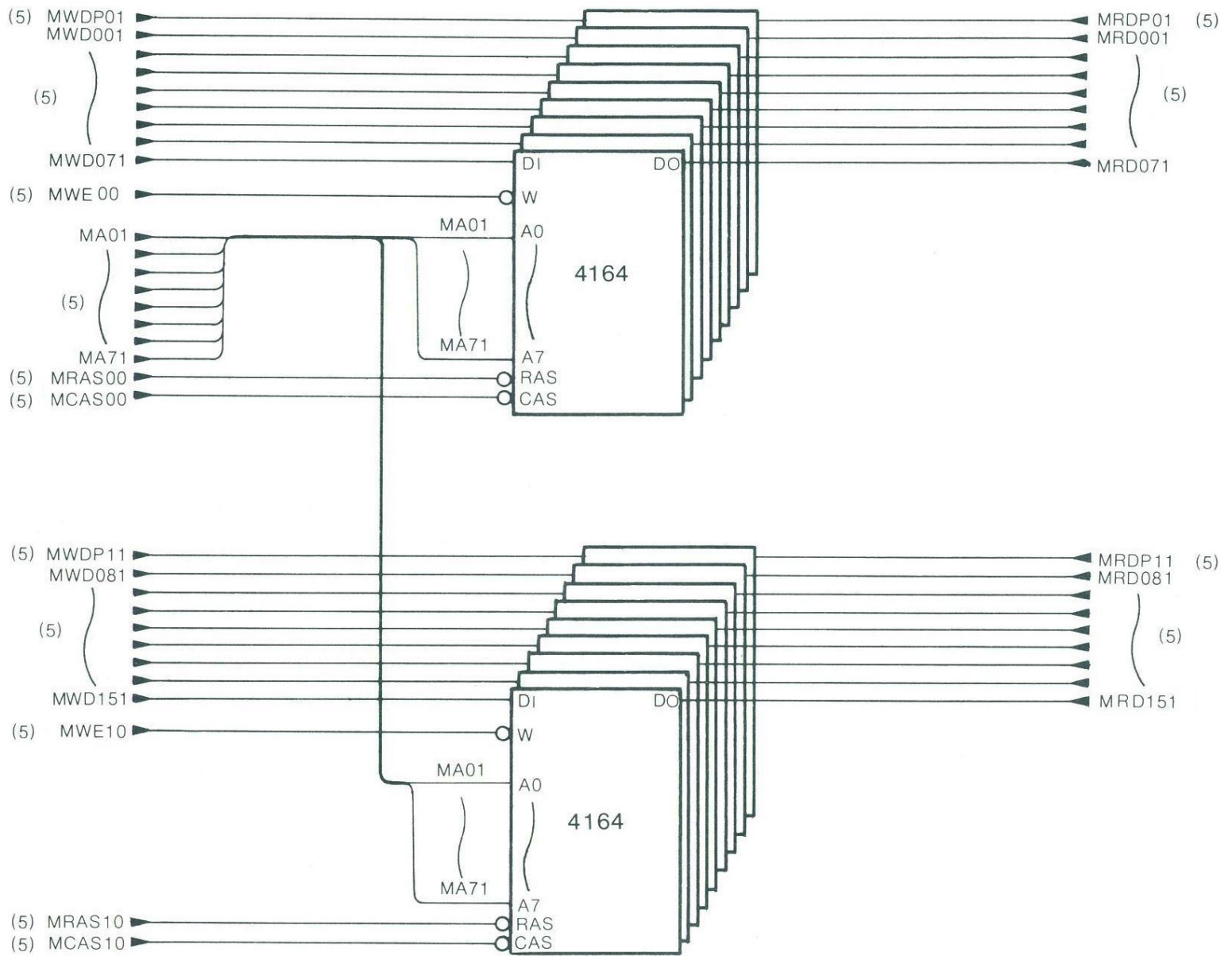
**Motherboard (3) Direct Memory Access control 2**



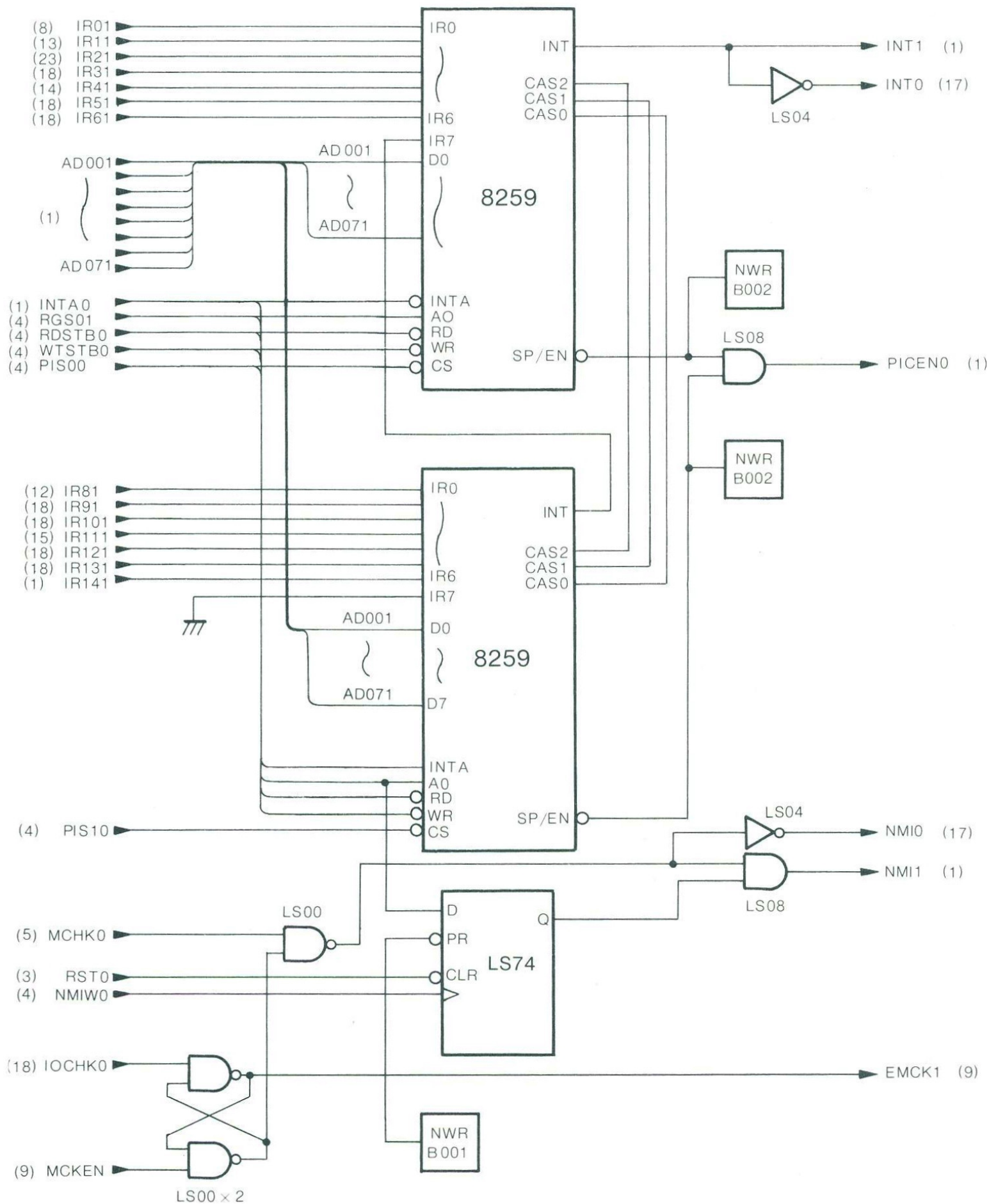
**Motherboard (4) Buffers/decoders 1**



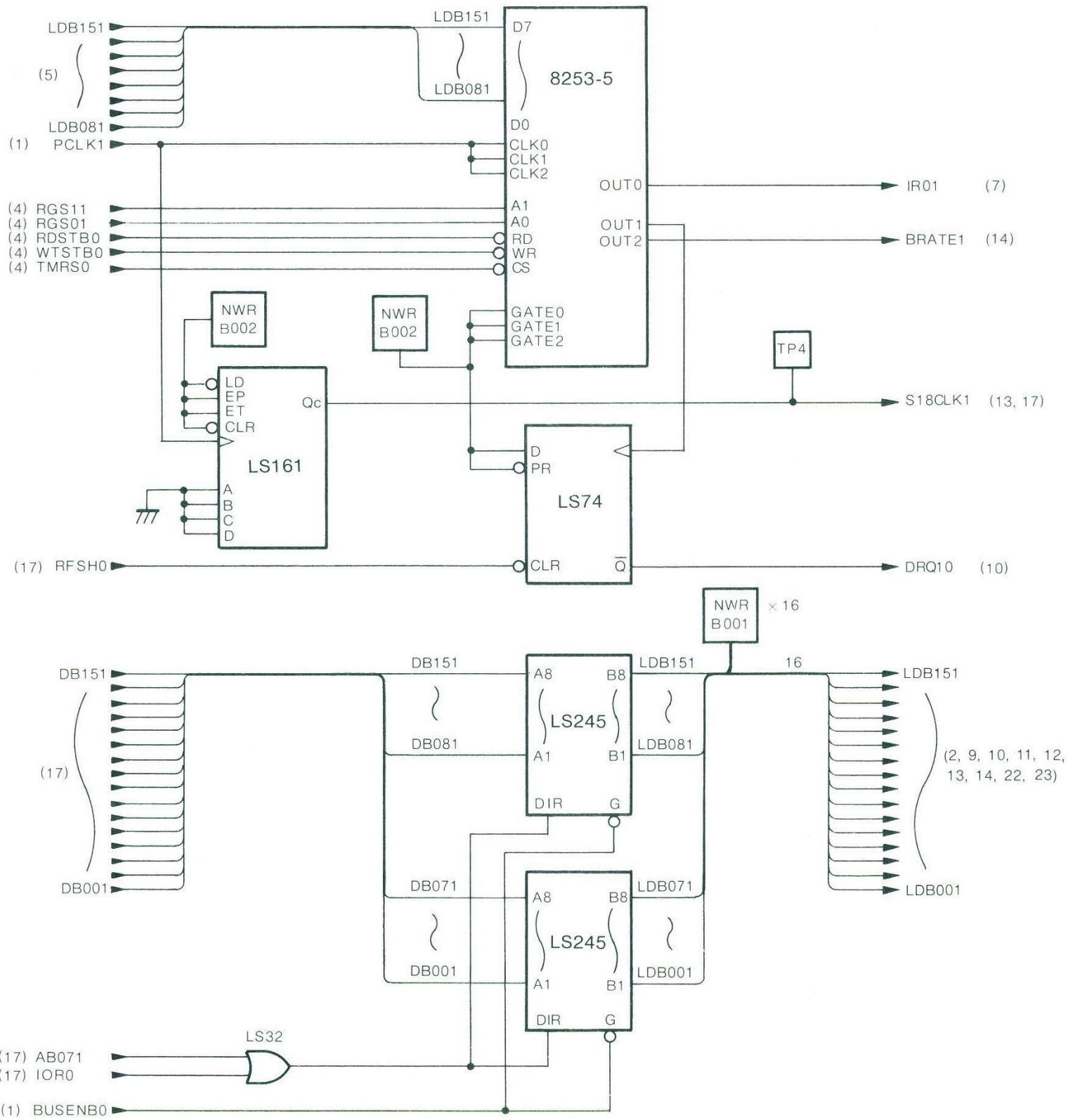




**Motherboard (6) Main memory Dynamic Random Access Memories (4164 x 16)**

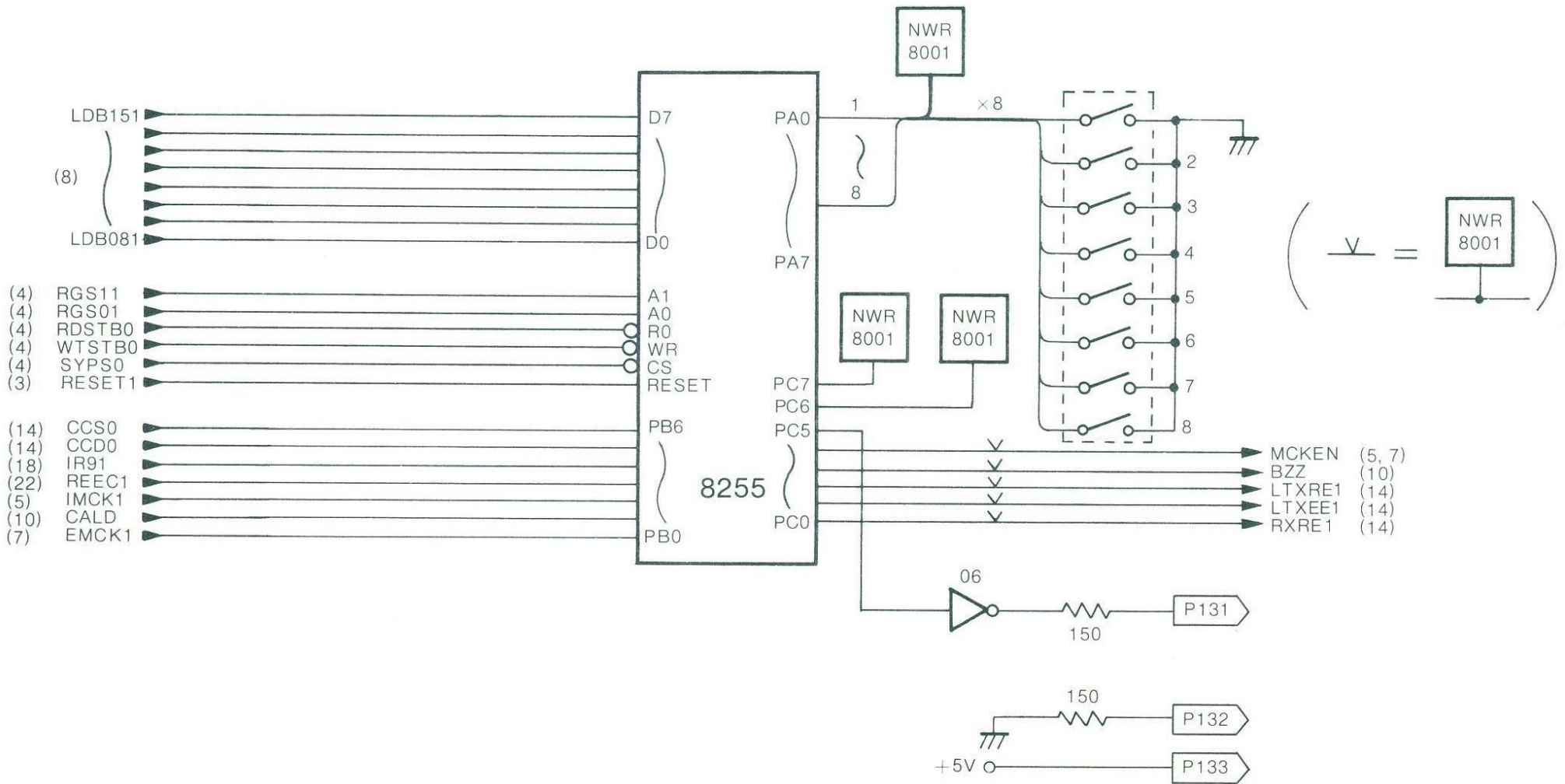


**Motherboard (7) Interrupts (8259 x 2)**



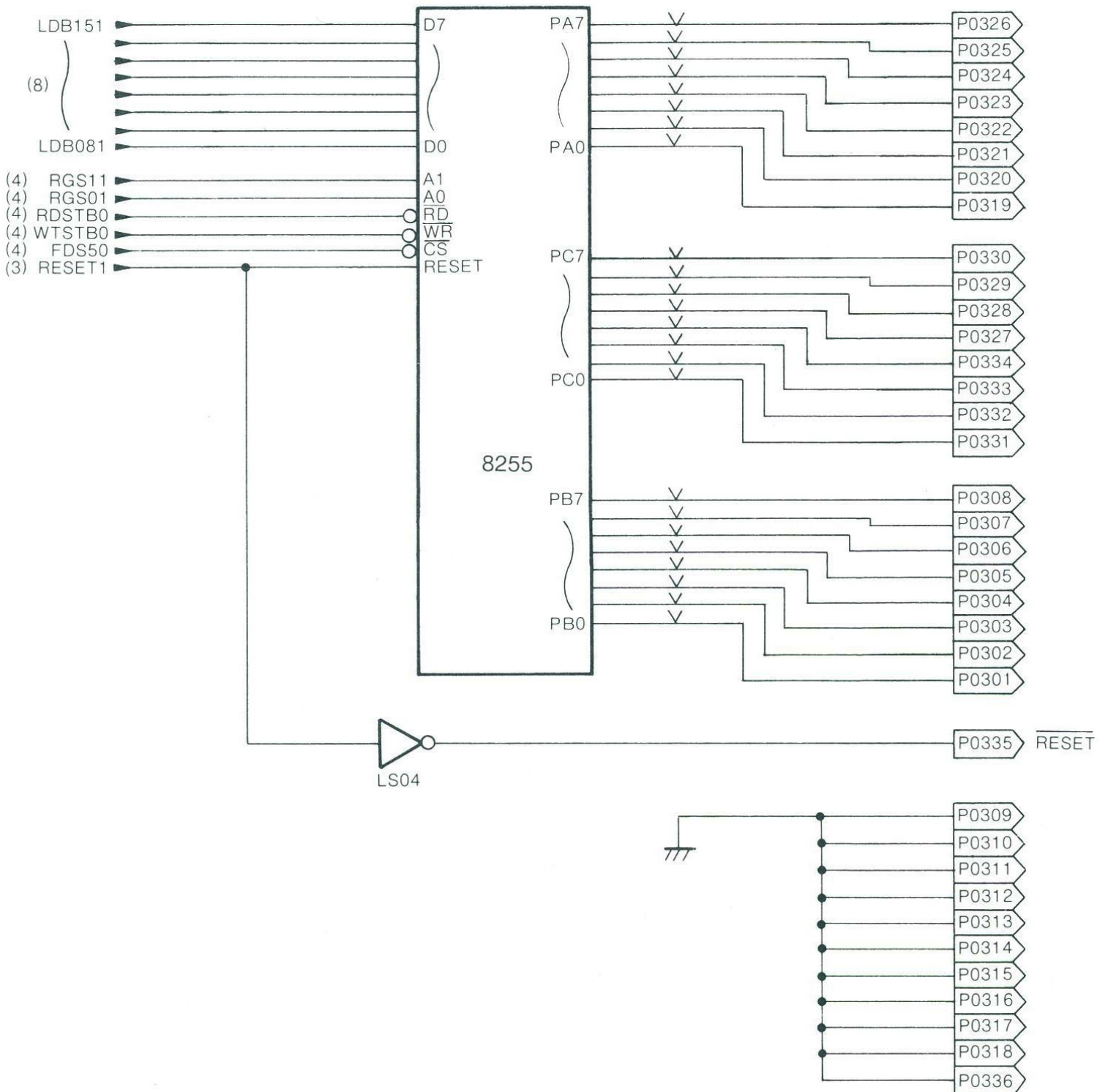
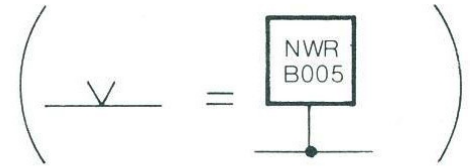
**Motherboard (8) Timer (8253), buffers**





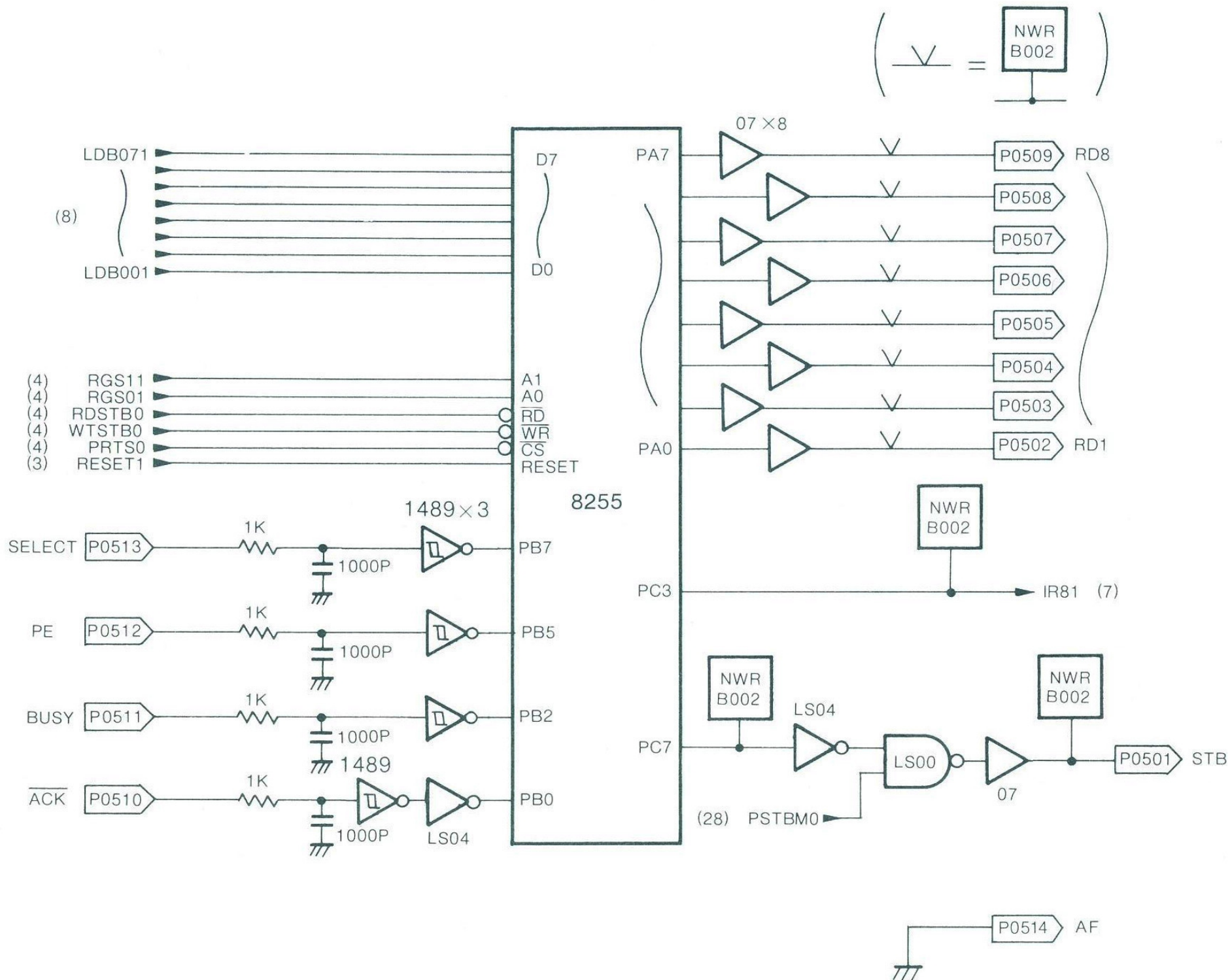
**Motherboard (9)    System ports (8255)**



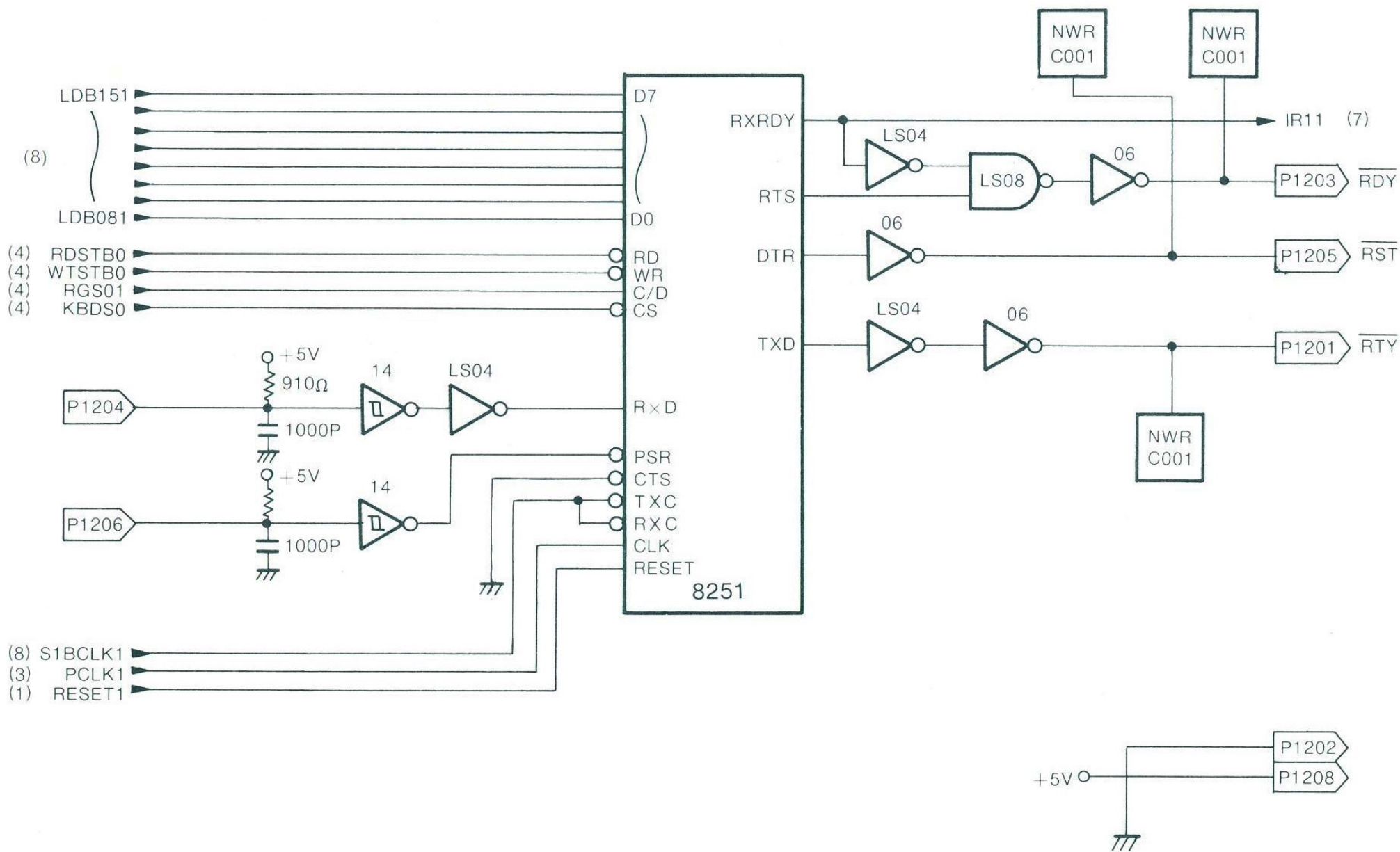


**Motherboard (11) Floppy Disk (8255) control 1**

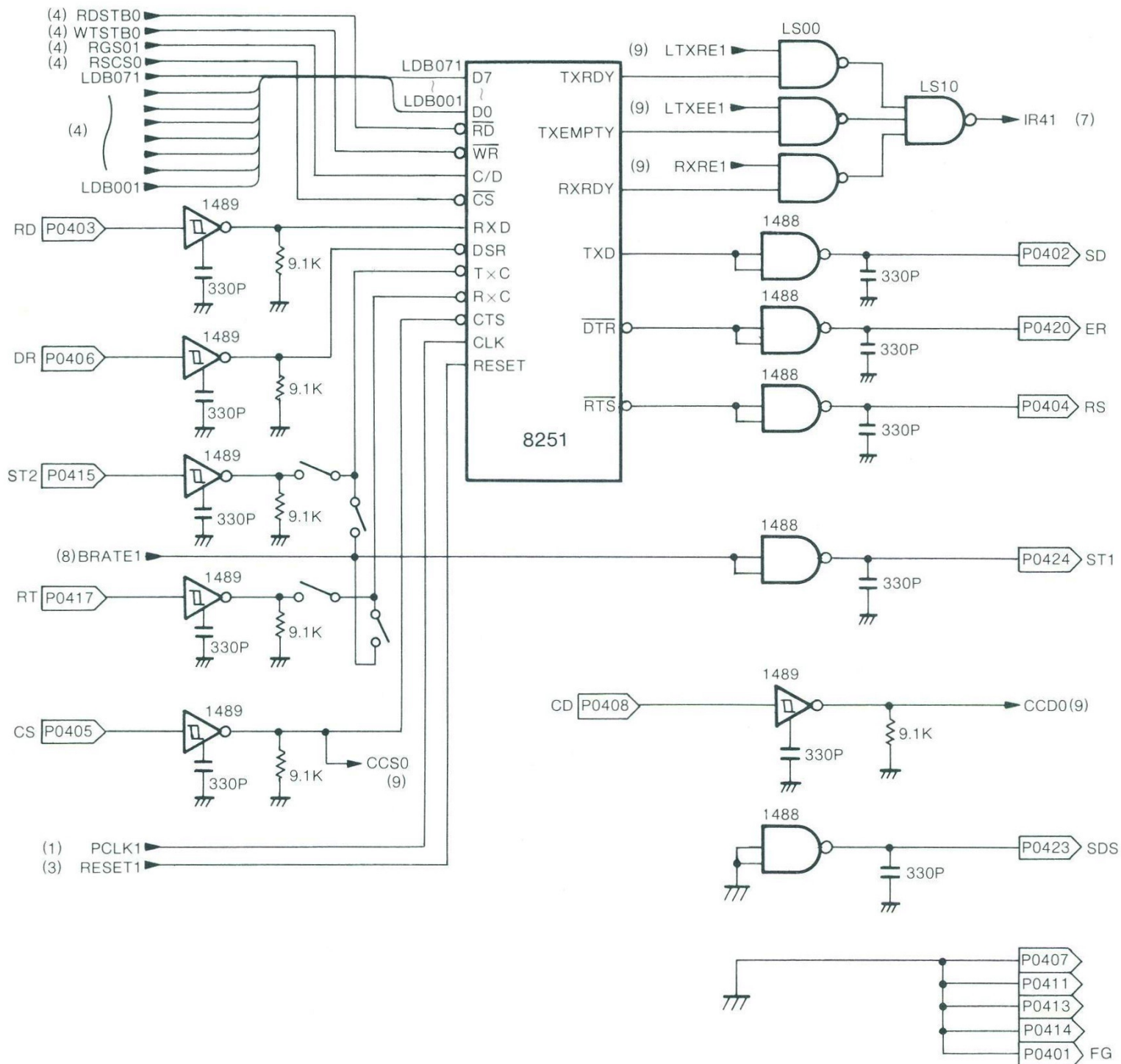




**Motherboard (12) Centronics Printer (8255)**



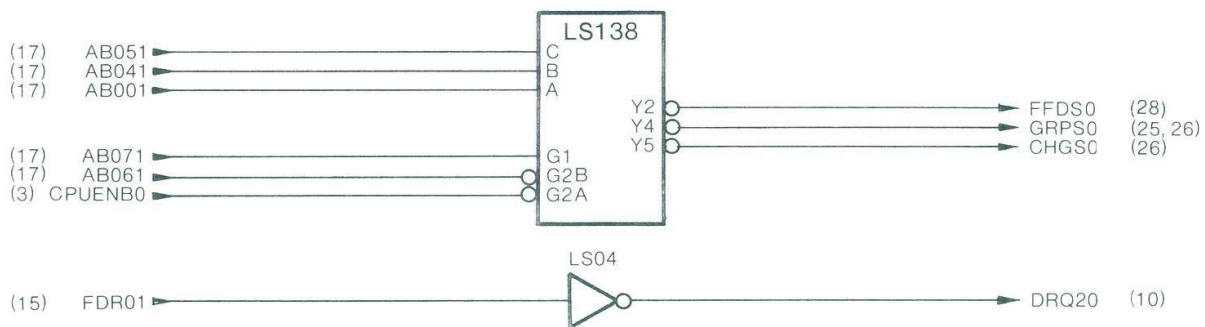
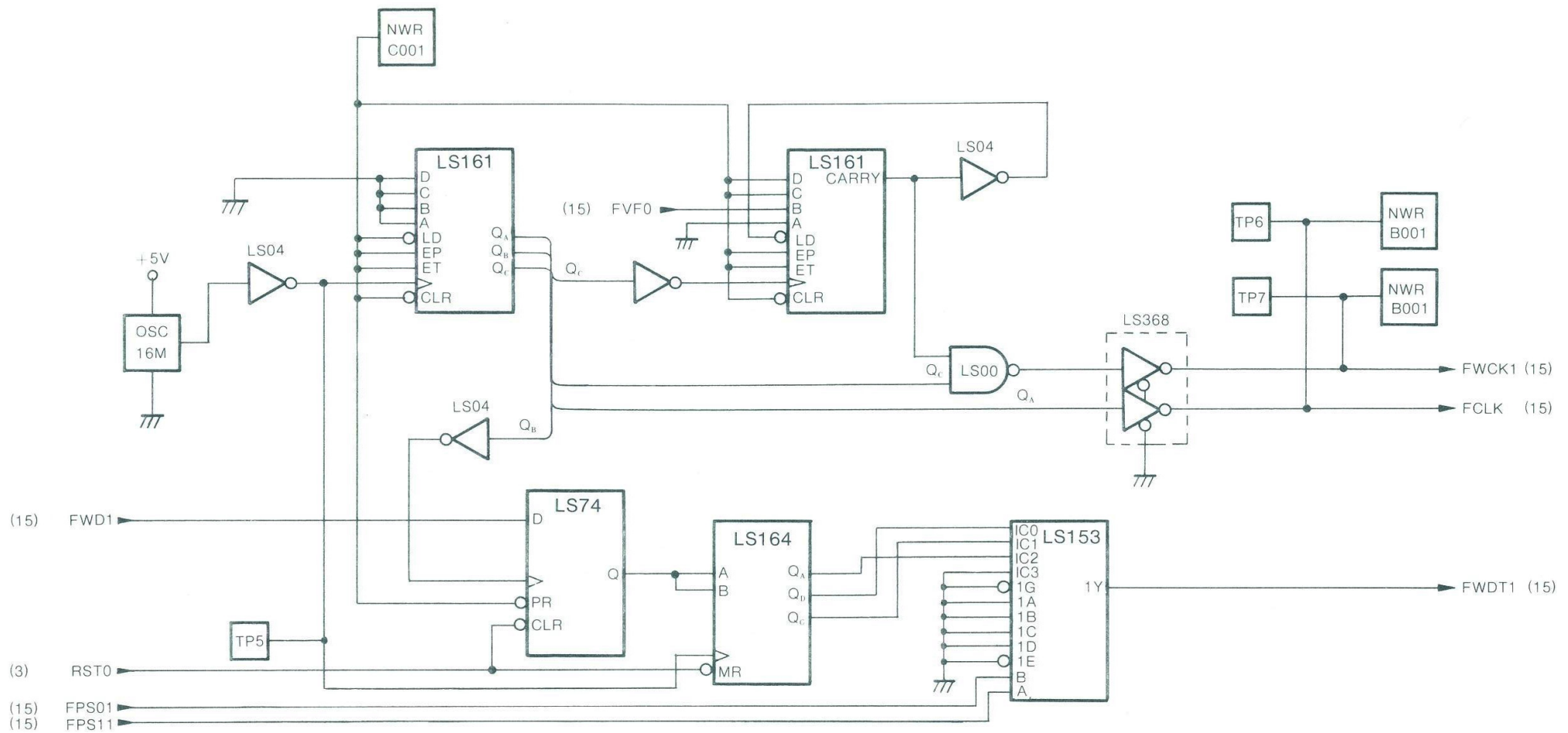
**Motherboard (13) Keyboard (8251)**



**Motherboard (14) RS-232C Serial Interface (8251)**







**Motherboard (16) Floppy Disk control 3**

AB191  P7A25

AB181  P7A24

AB171  P7A23

AB161  P7A22

AB151  P7A20

AB141  P7A19

AB131  P7A18

AB121  P7A17

AB111  P7A16

AB101  P7A15

AB091  P7A14

AB081  P7A13

AB071  P7A12

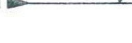
AB061  P7A10

AB051  P7A9

A0041  P7A8

AB031  P7A7

AB021  P7A6

AB011  P7A5

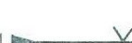
AB001  P7A4

DB151  P7B20

DB141  P7B19

DB131  P7B18

DB121  P7B17

DB111  P7B16

DB101  P7B15

DB091  P7B14

DB081  P7B13

DB071  P7B12

DB061  P7B10

DB051  P7B9

DB041  P7B8

DB031  P7B7

DB021  P7B6

DB011  P7B5

DB001  P7B4

POWER0  P7A48

IOR0  P7A33

IOW0  P7A34

MRC0  P7A35

MWC0  P7A36

MWE0  P7B45

BHE0  P7A44

RFSH0  P7A43

DMATC0  P7B43

DACK00  P7B35

DACK30  P7B36

HLDA00  P7B46

SCLK1  P7A46

RESET0  P7B34

CPUENB10  P7A42

S18CLK1  P7A47

S00  P7A37

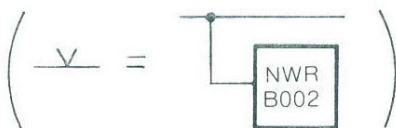
S10  P7A38

S20  P7A39

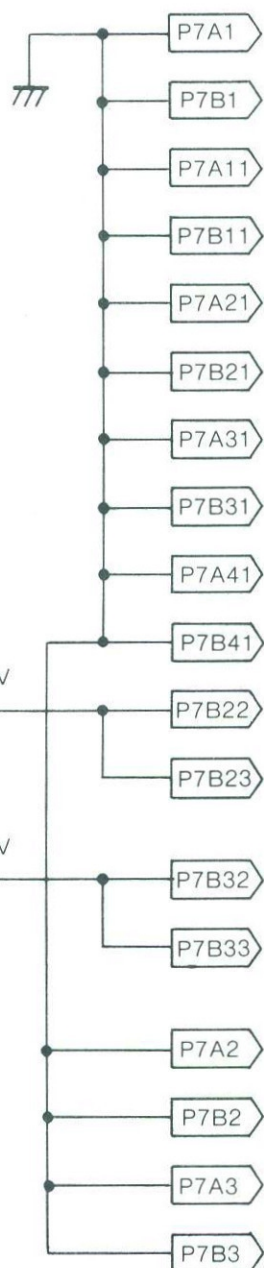
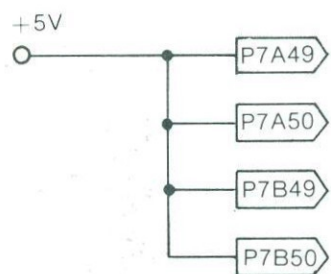
LOCK0  P7A40

NMI0  P7B44

INT0  P7A30







P7B24 V IR31 (7)

P7B25 V IR51 (7)

P7B26 V IR61 (7)

P7B27 V IR91 (7)(9)

P7B28 V IR101 (7)

P7B29 V IR121 (7)

P7B30 V IR131 (7)

P7A32 V IOCHK0 (7)

P7B39 V WORD0 (2)

P7B40 V CPKILL0 (1)

PLB37 V DRQ00 (10)

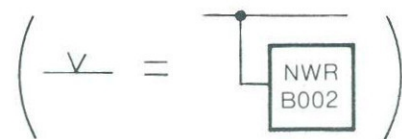
P7B38 V DRQ30 (10)

P7B42 V RQGT0 (1)

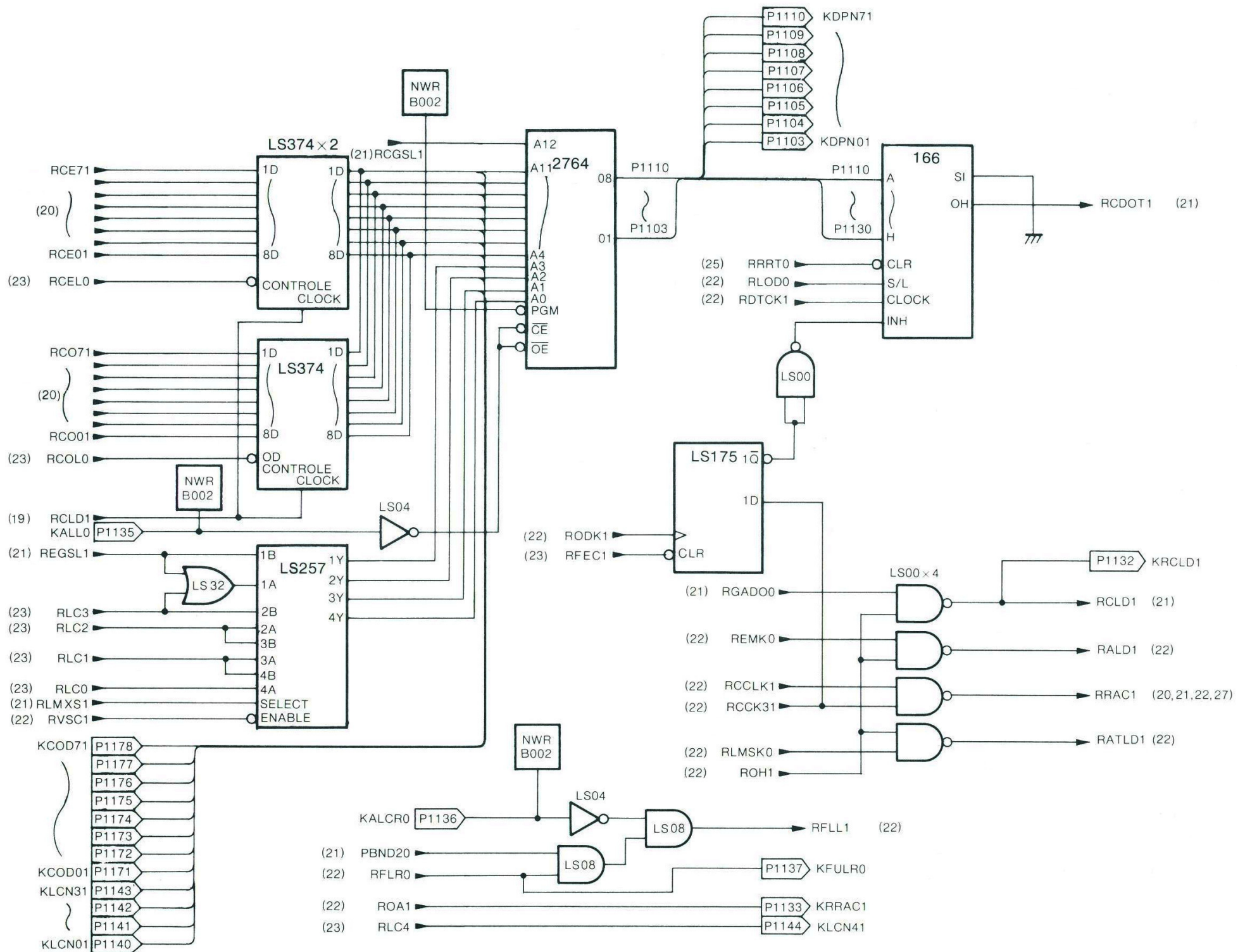
P7B47 V HR000 (3)

P7B48 V DMAHLD0 (10)

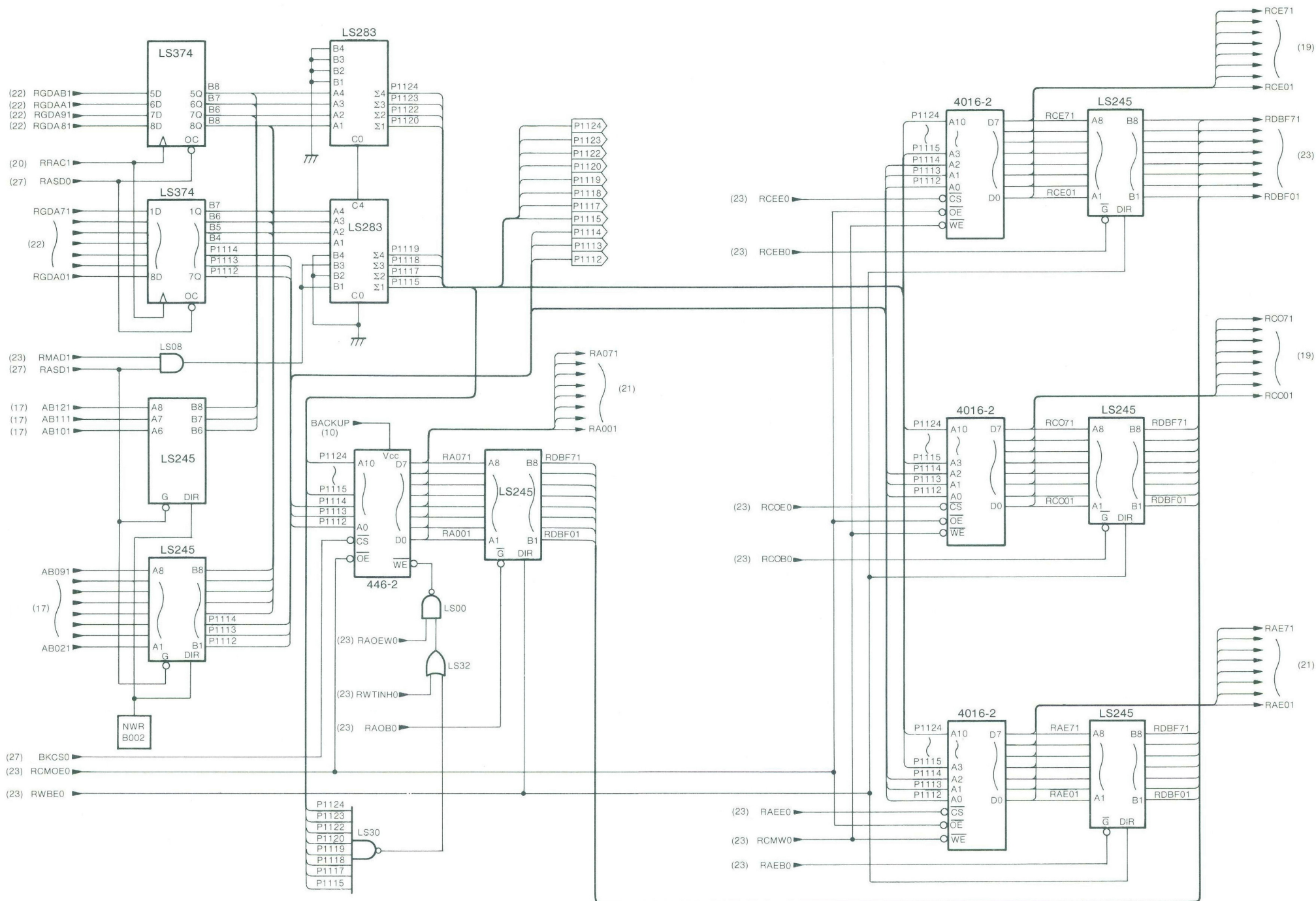
P7A45 V IORDY1 (3)



**Motherboard (18) Expansion slot 2 (General)**

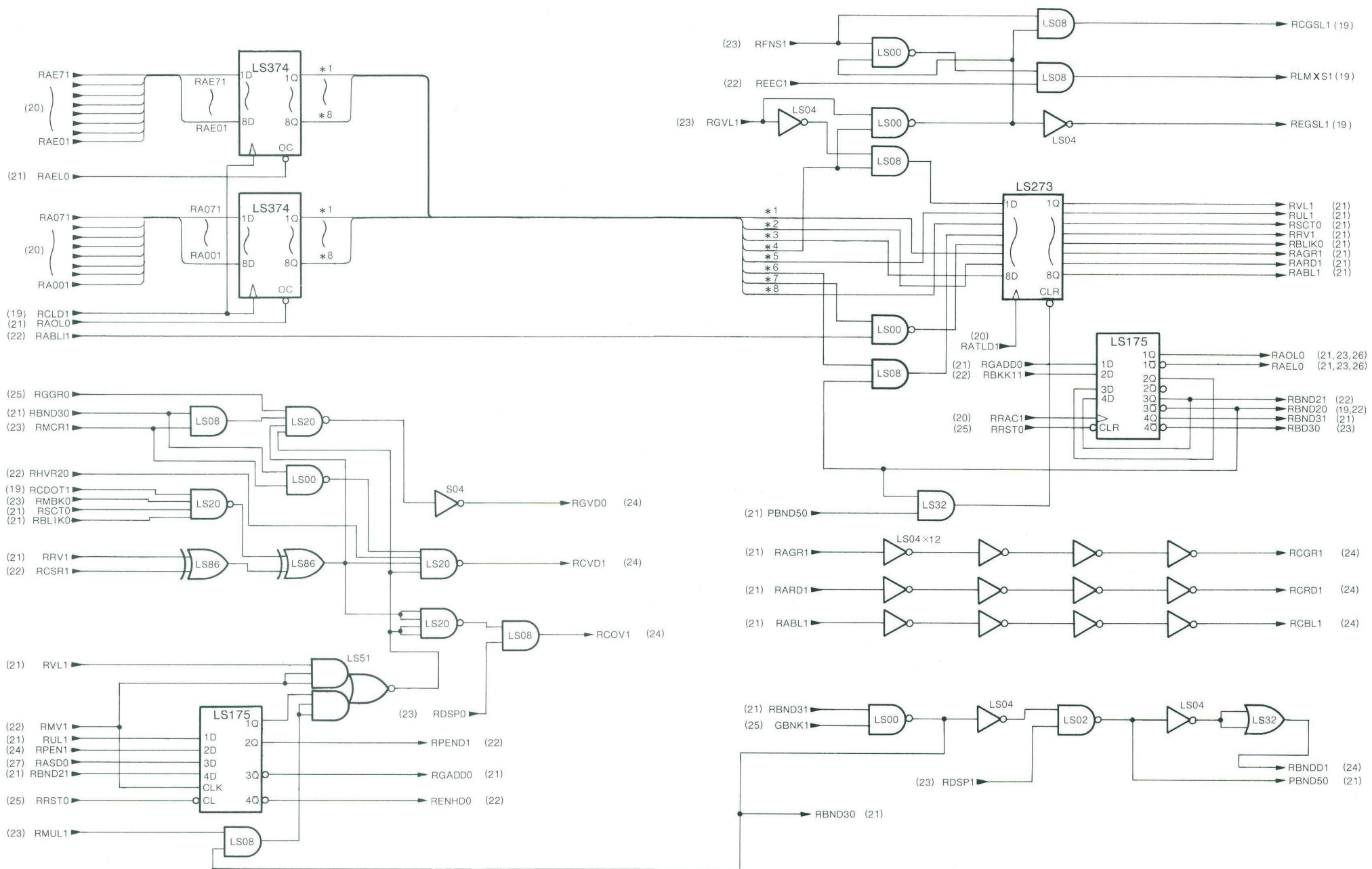


**Motherboard (19) Character Programmable Read Only Memory (2764)**



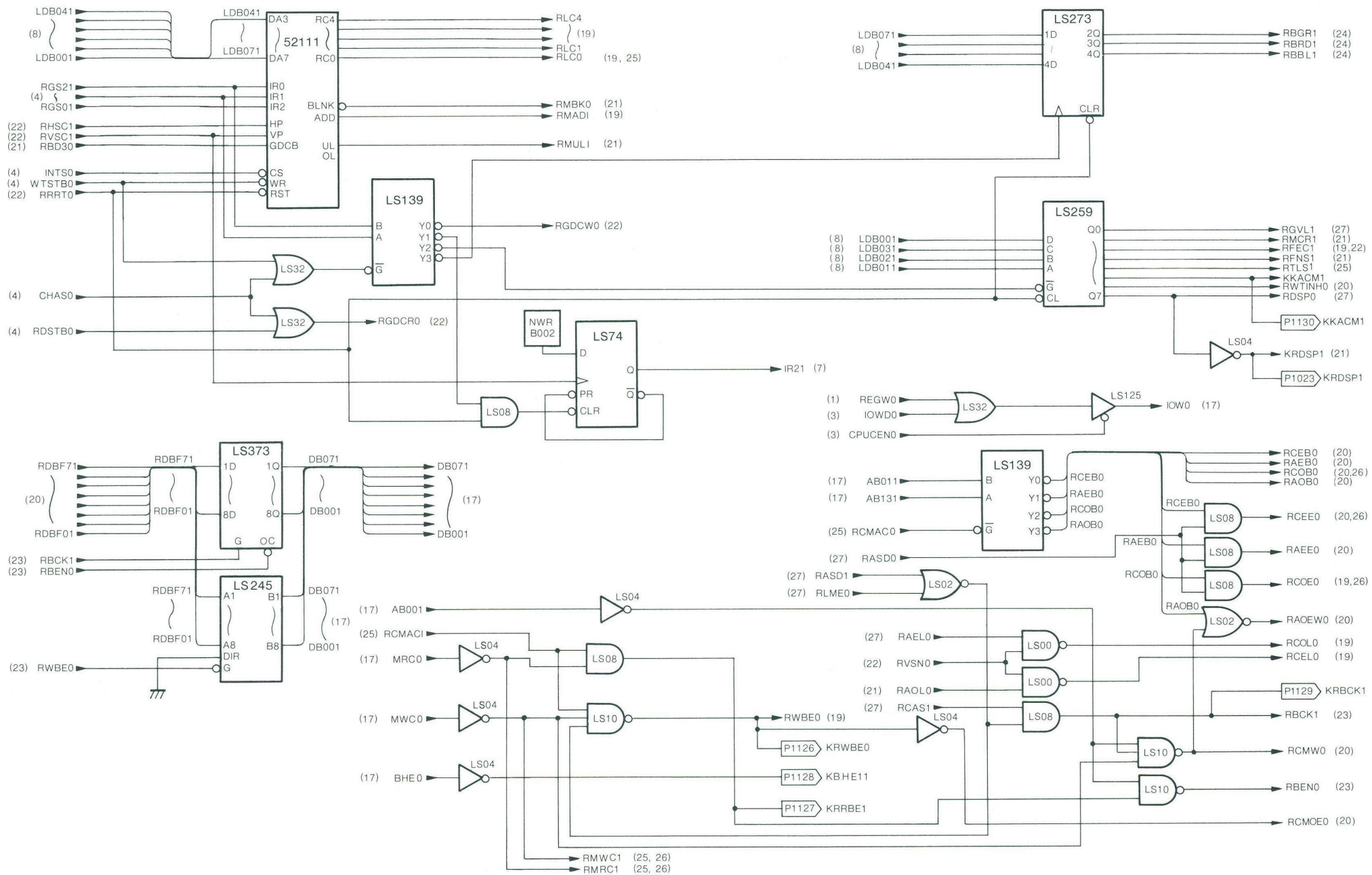
**Motherboard (20)      Character Static Random Access Memory (4016 x 3)**





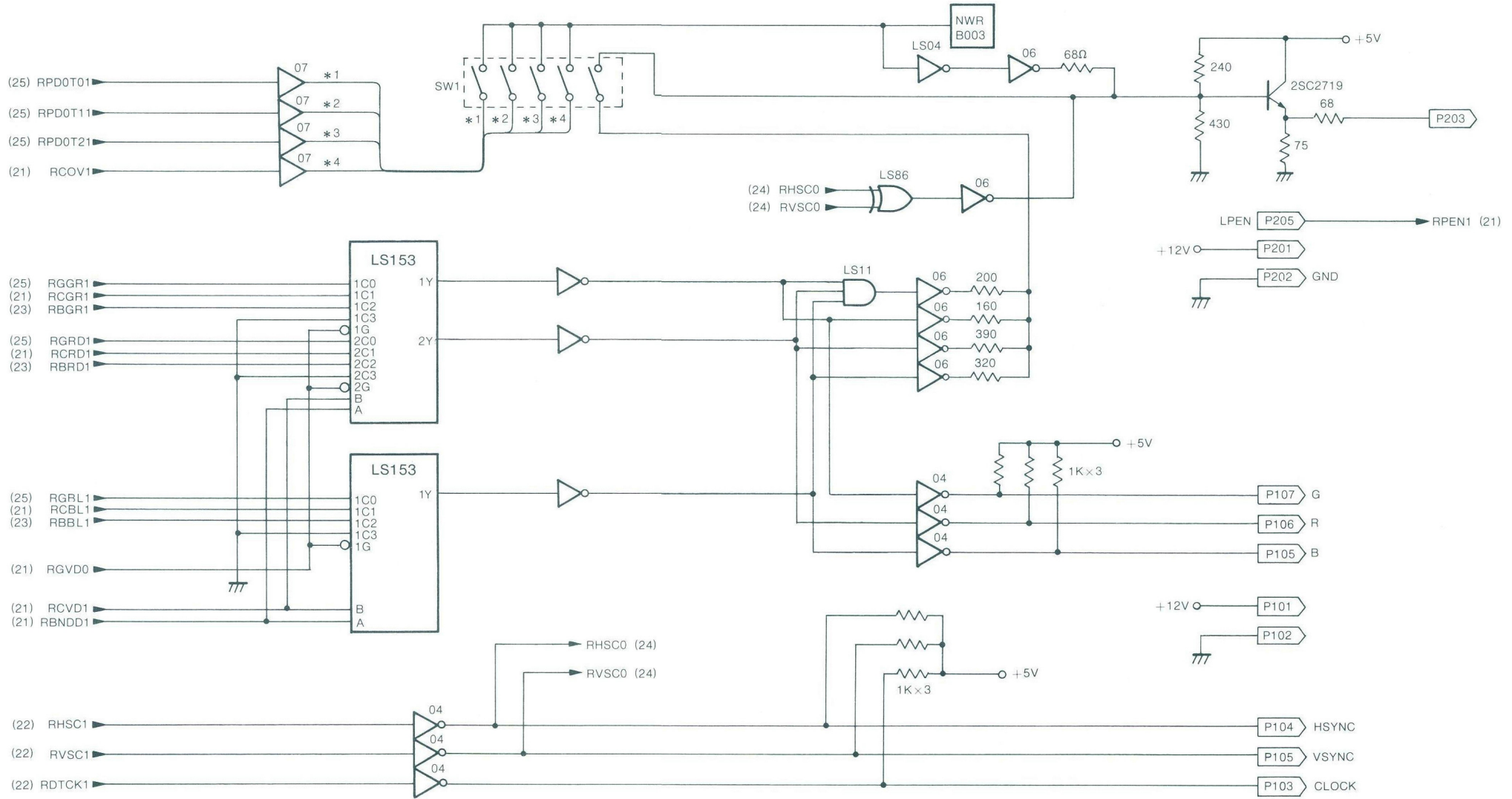
**Motherboard (21) Character Display 1**





**Motherboard (23) Character Display 2 (52111)**



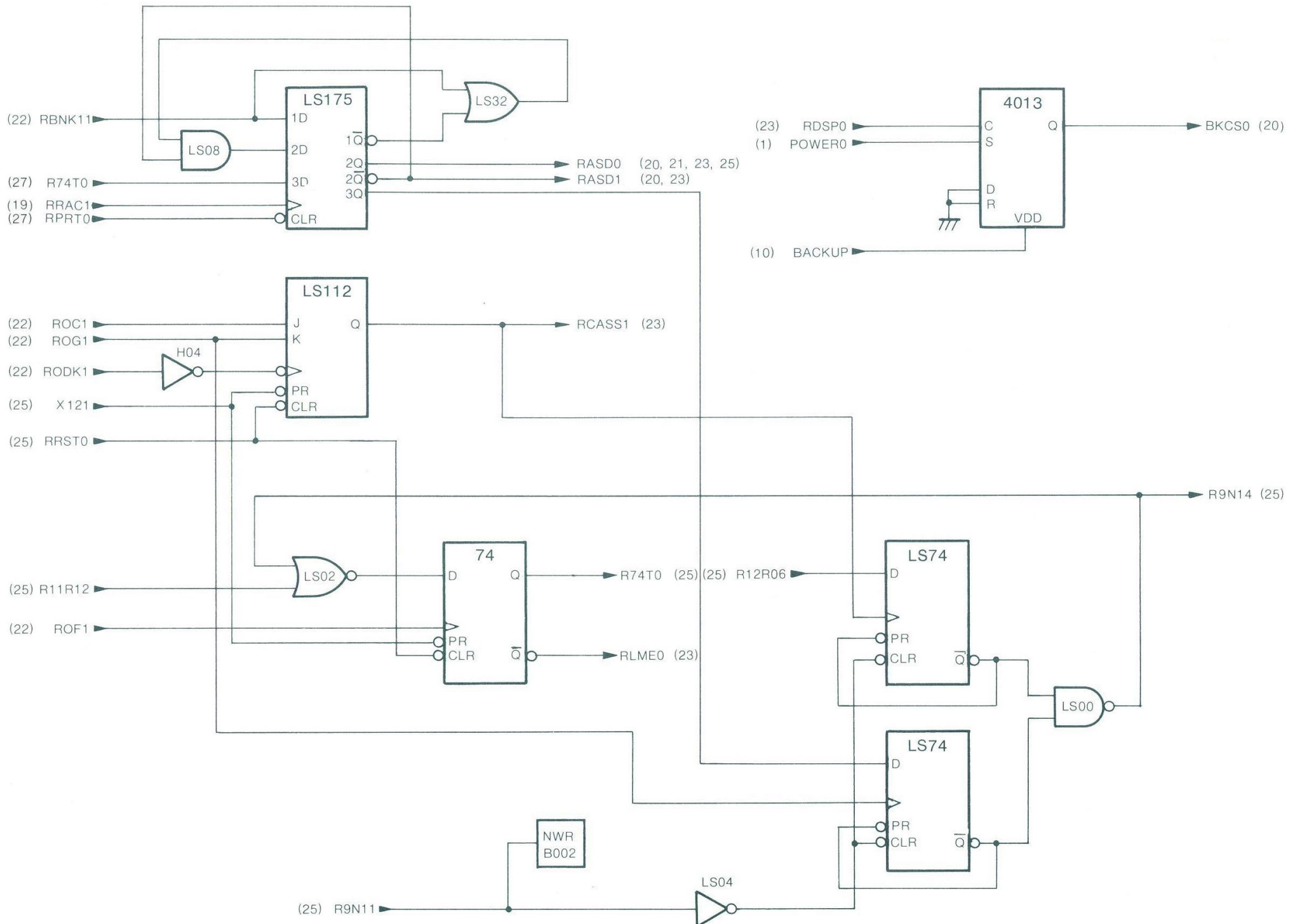


**Motherboard (24) Character Display 3**

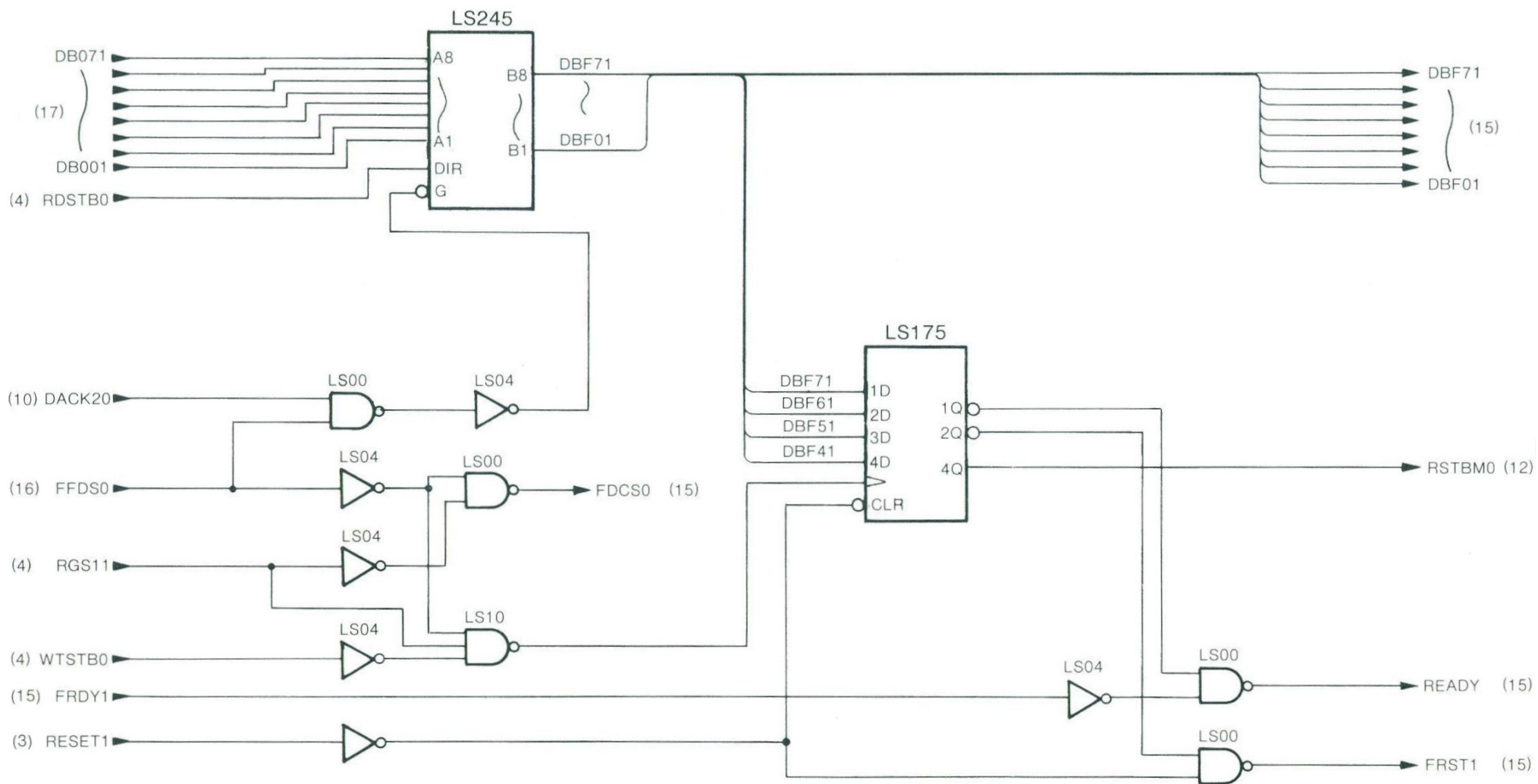




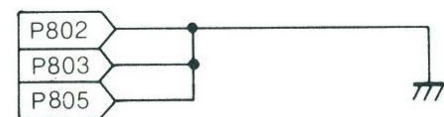




**Motherboard (27) Character Display 5**

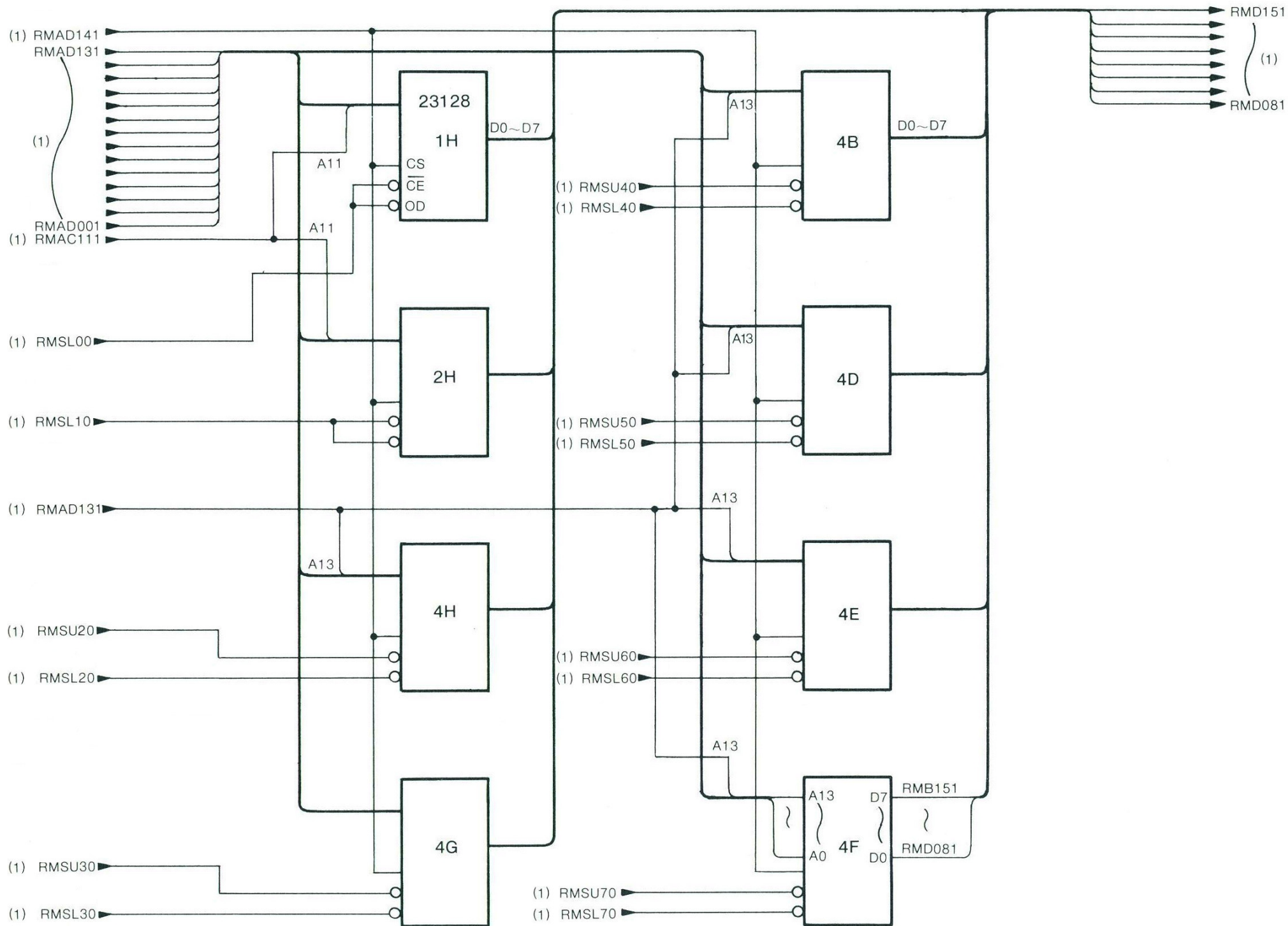


**Motherboard (28) Floppy Disk control 4**

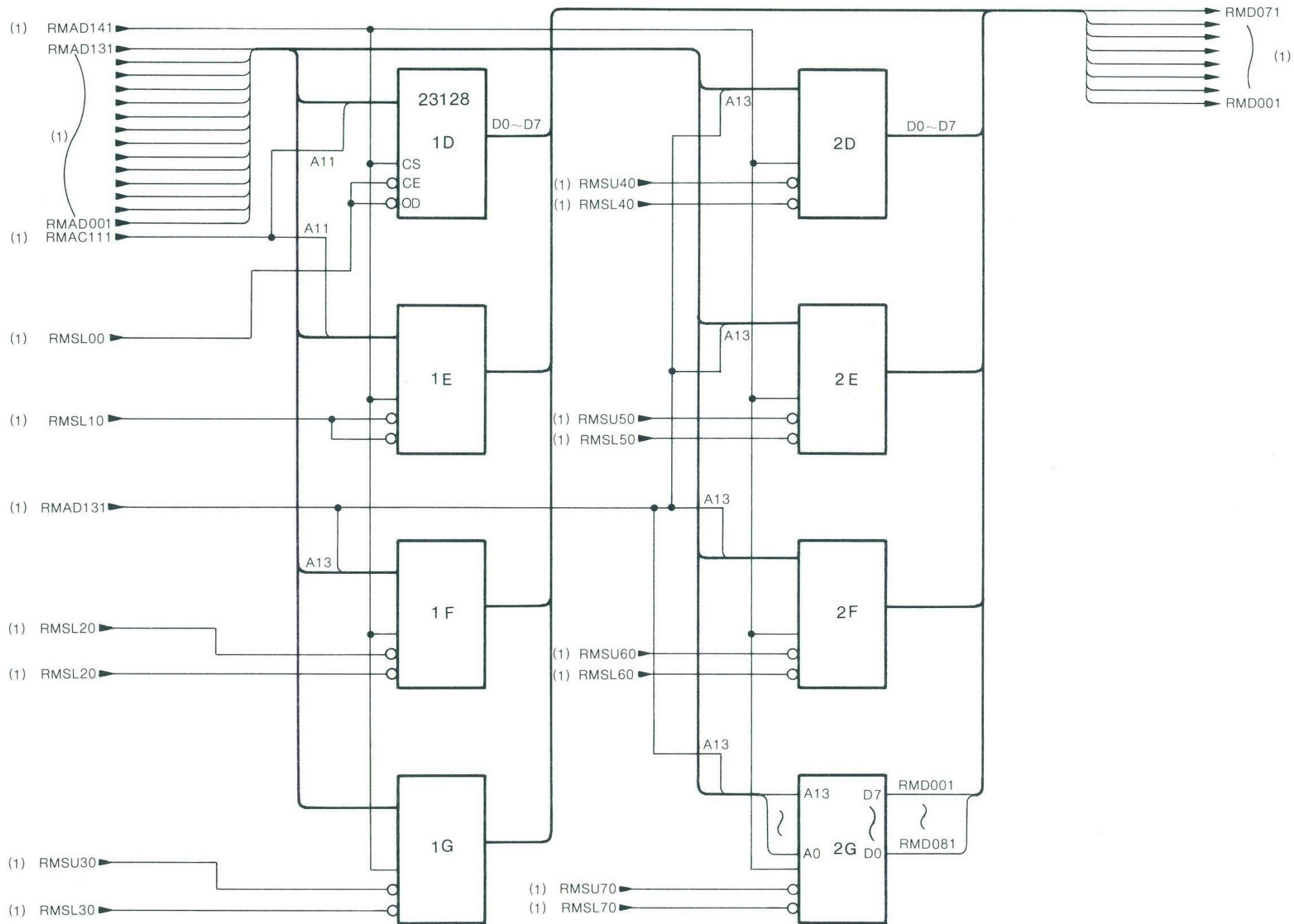




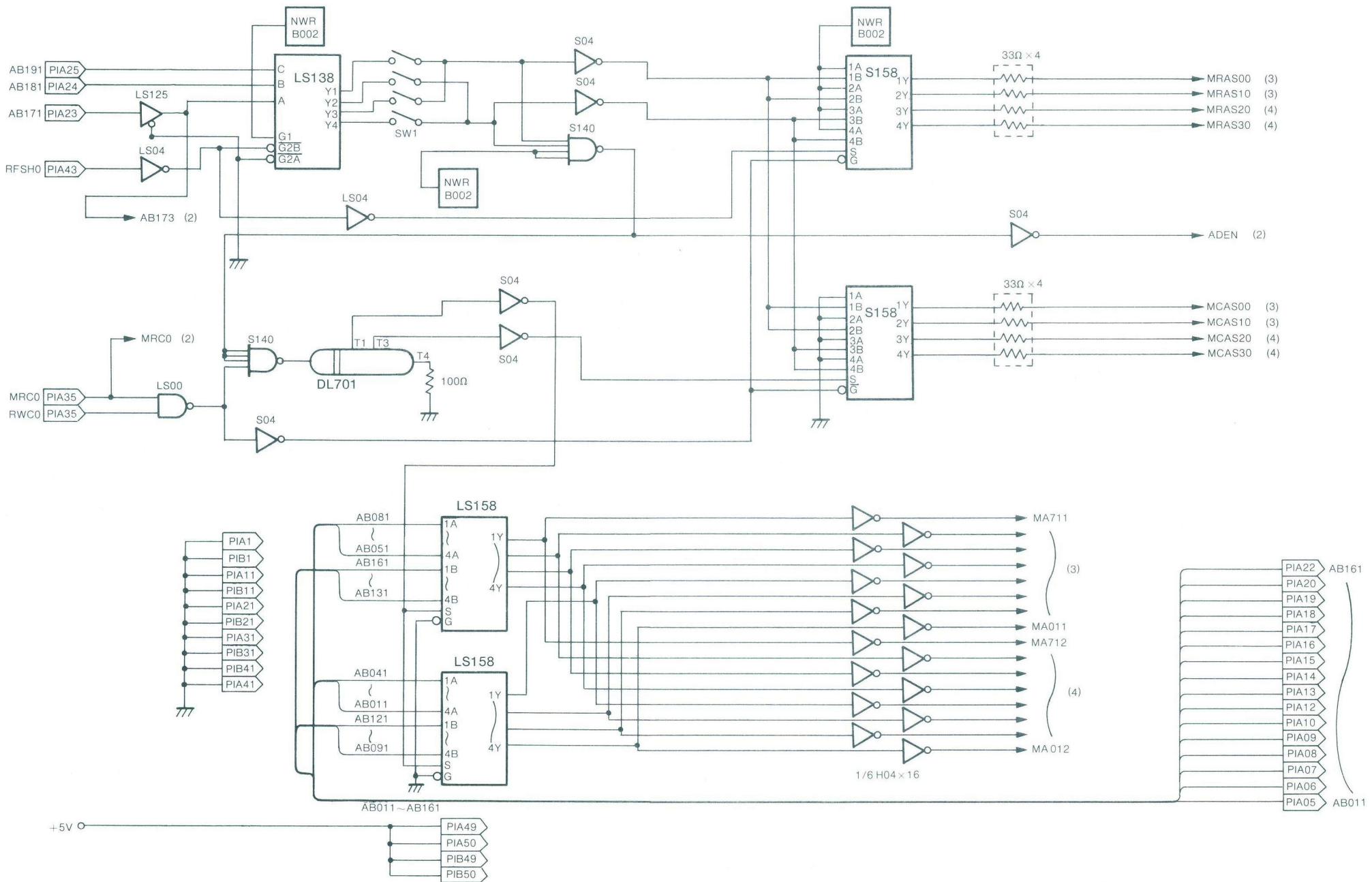




**BIOS ROM (2) Basic I/O System Read Only Memory 1 (23128 x 8)**



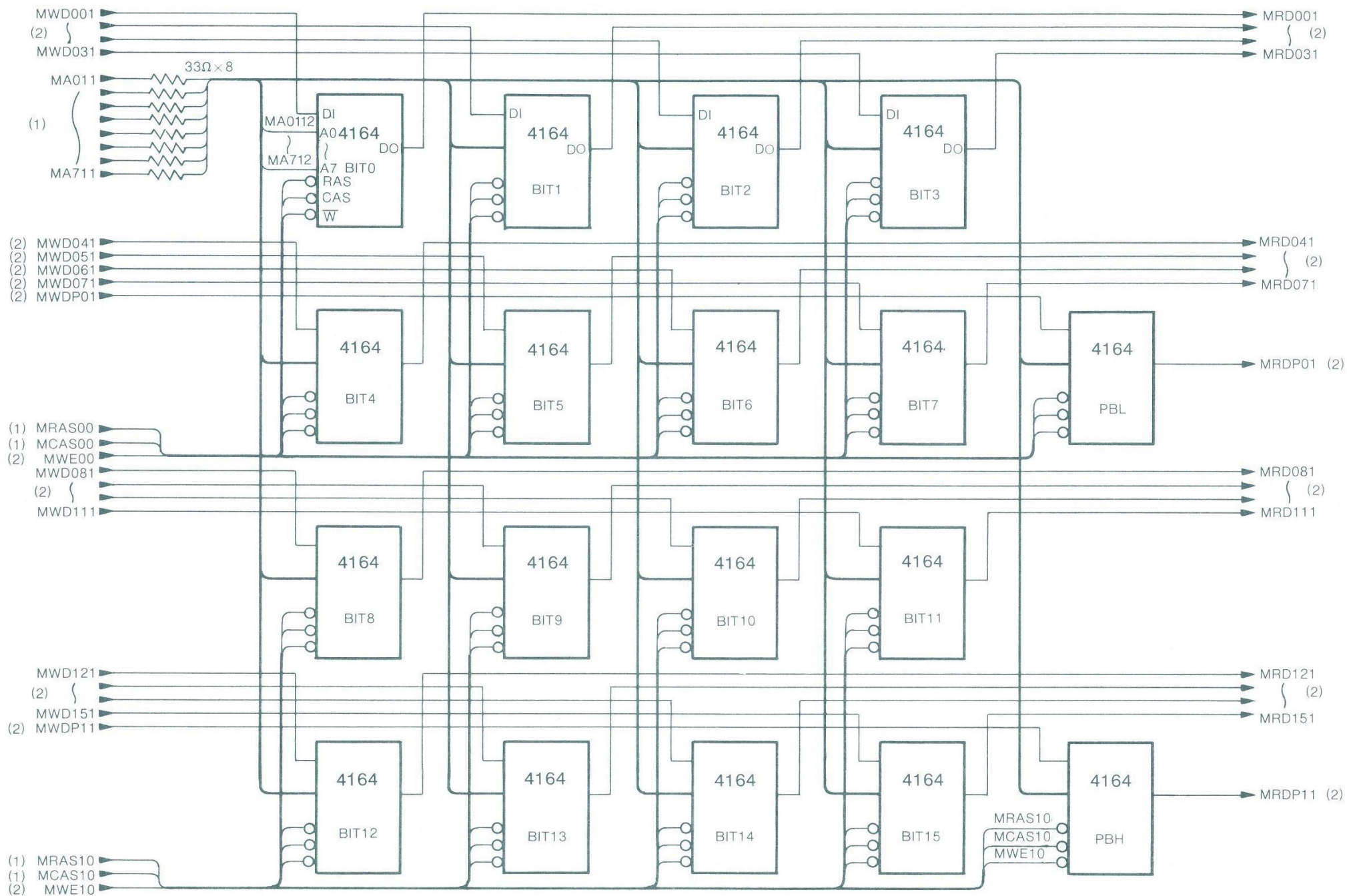
**BIOS ROM (3) Basic I/O System Read Only Memory 2 (23128 x 8)**



**Extended Main Memory (1)    Extended Dynamic Random Access Memory control 1**

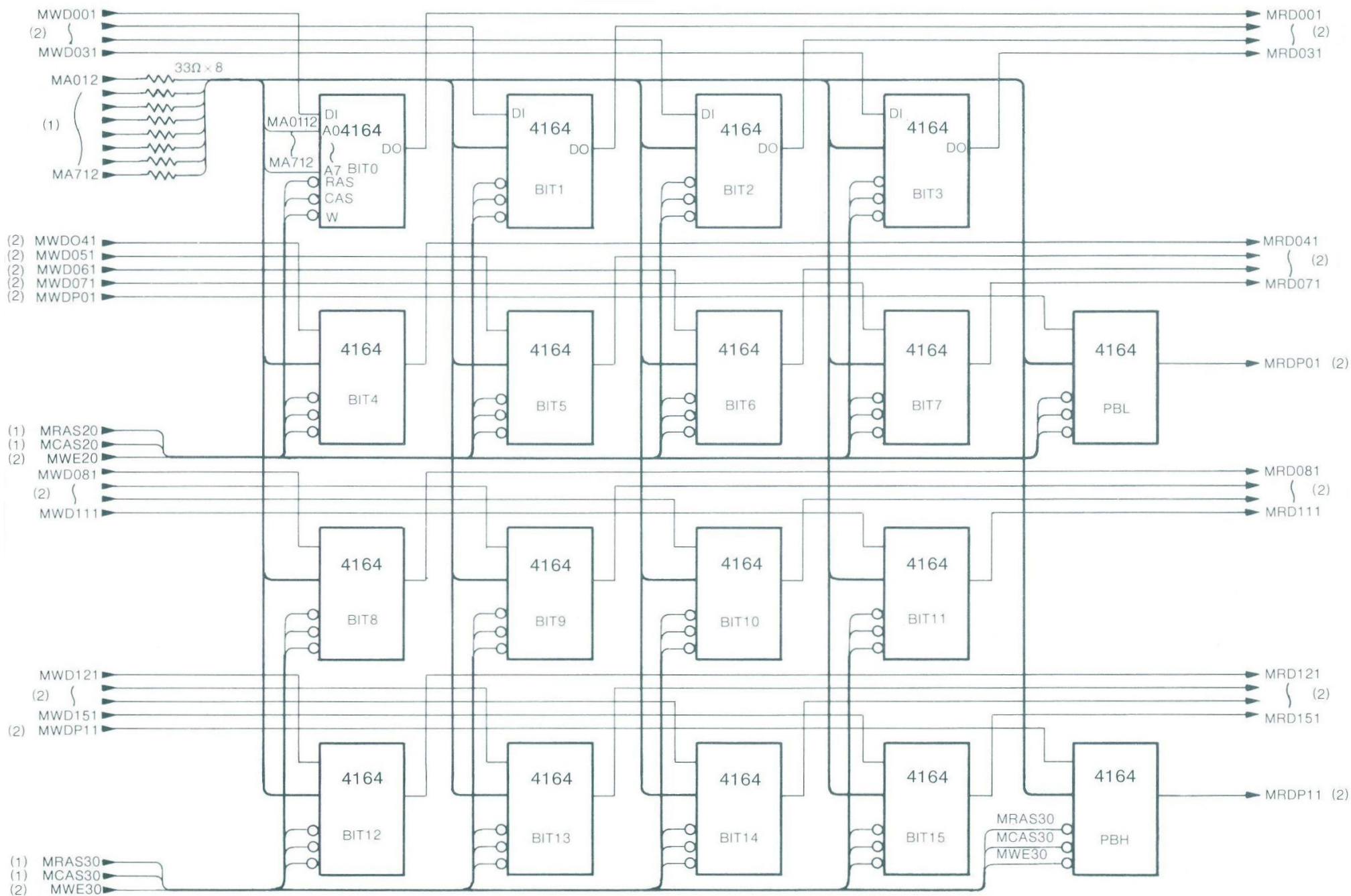






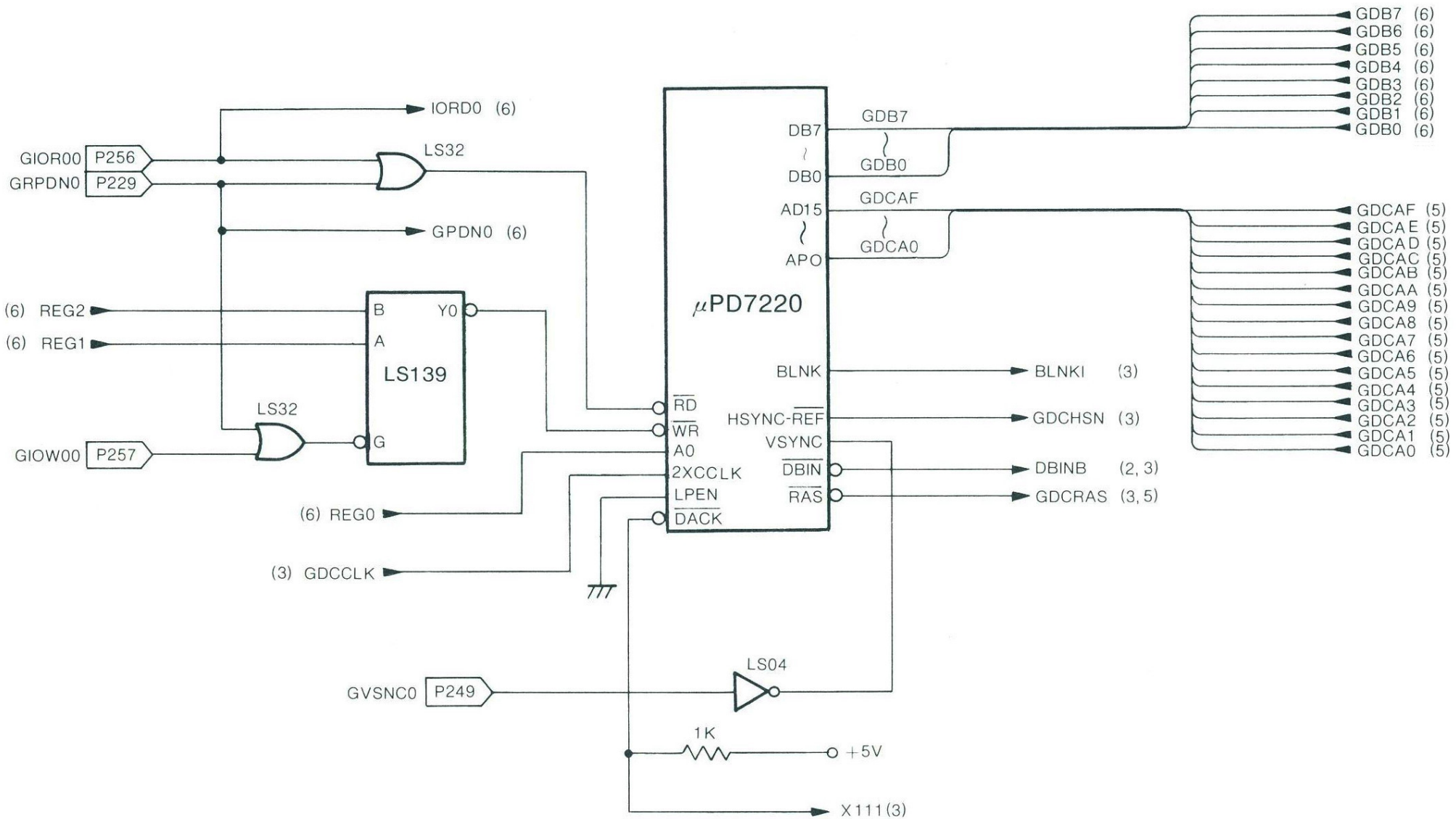
**Extended Main Memory (3)      Extended Dynamic Random Access Memory 1 (4164 x 18 with parity bit)**



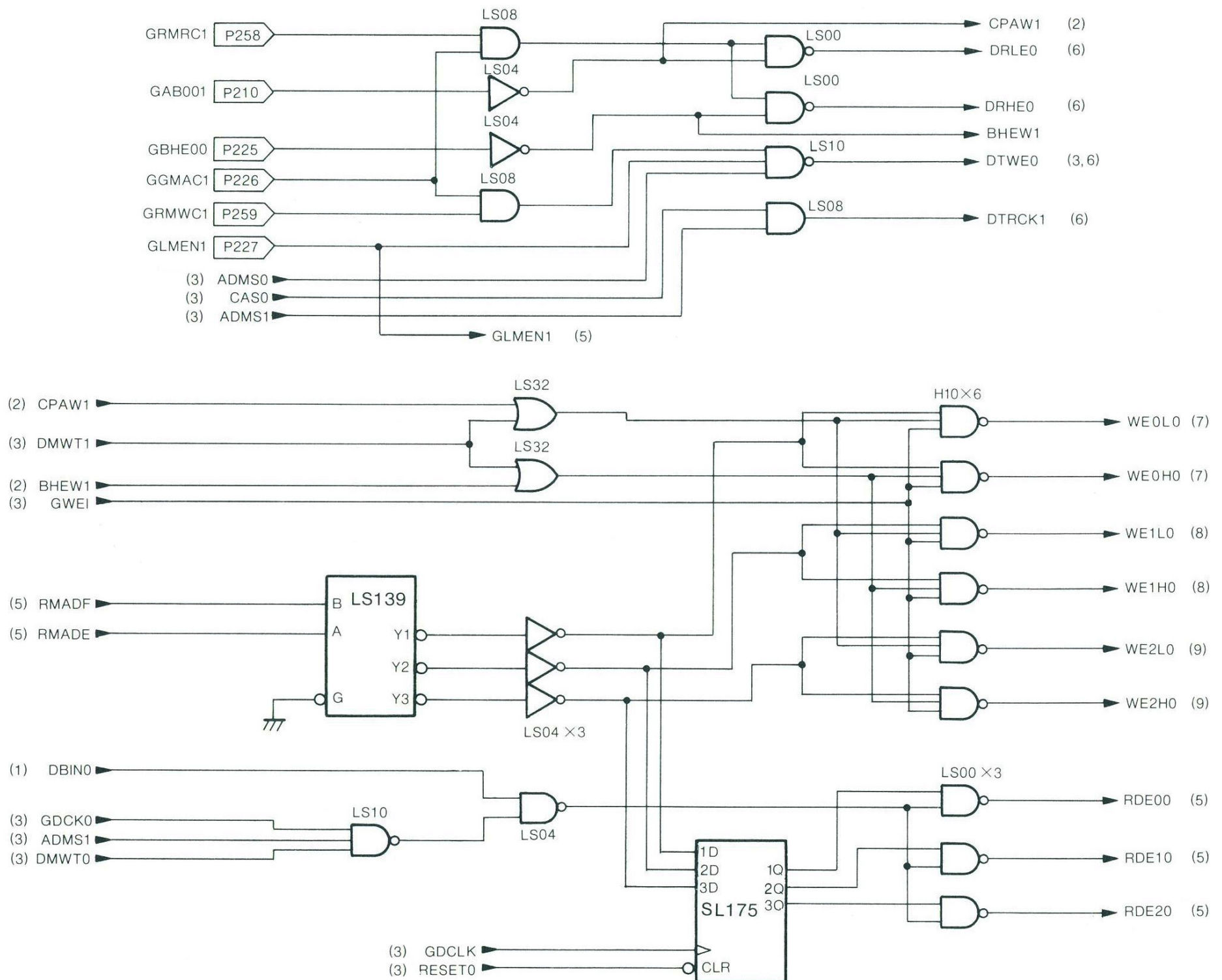


**Extended Main Memory (4)      Extended Dynamic Random Access Memory 2 (4164 x 18 with parity bit)**

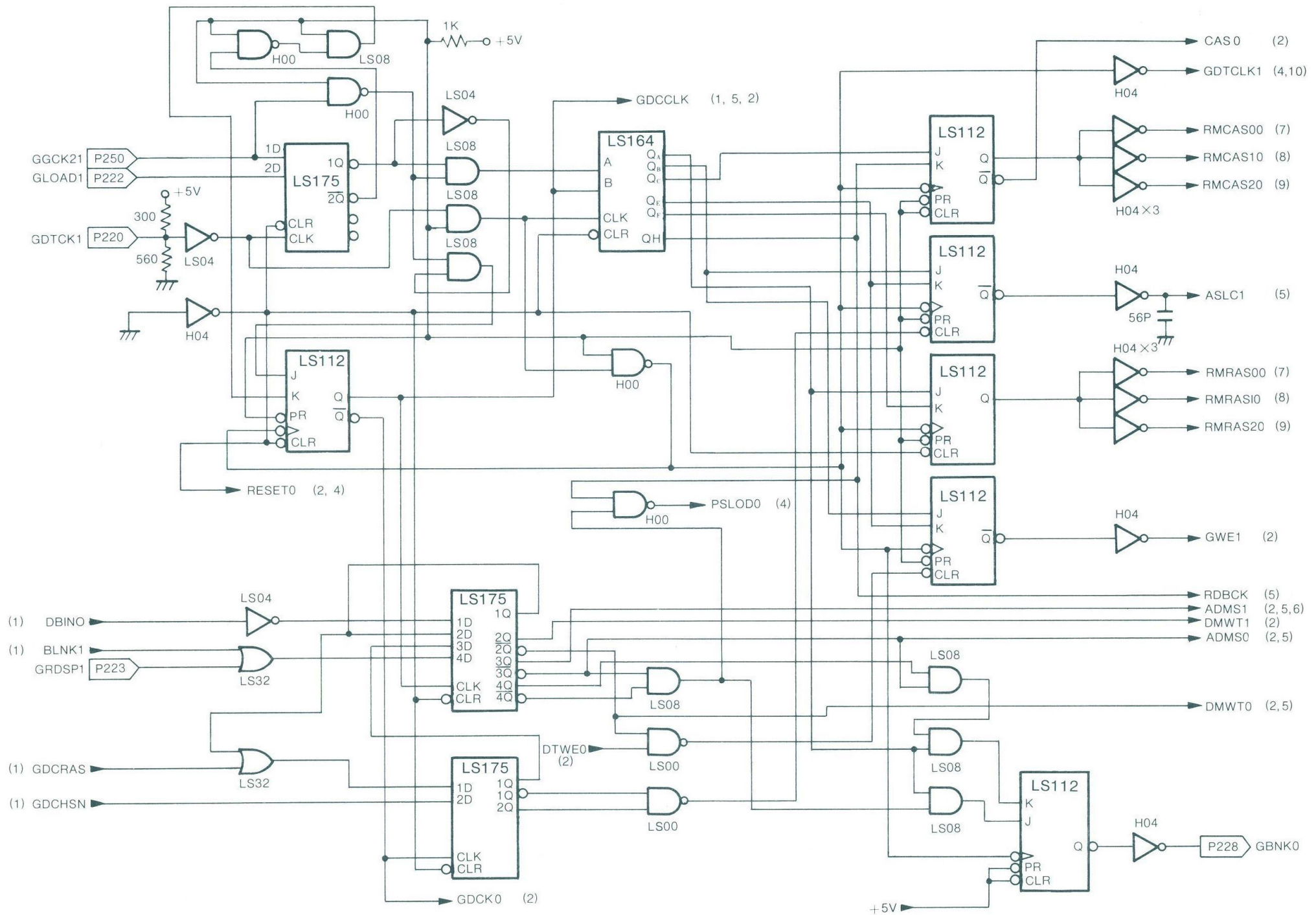




**Graphics (1) Graphics Display (7220; Slave)**

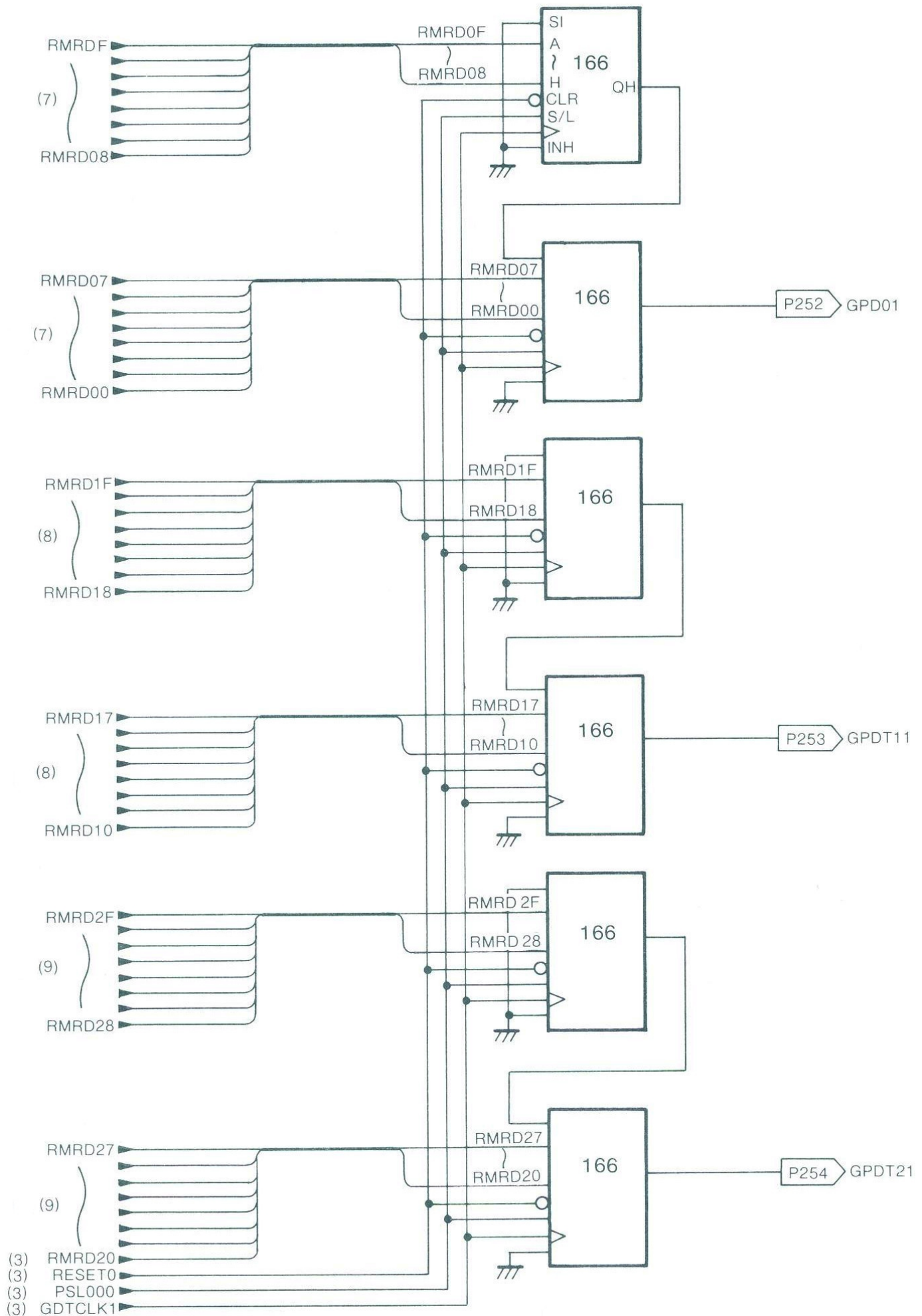


**Graphics (2) Graphics Dynamic Random Access Memory control 1**

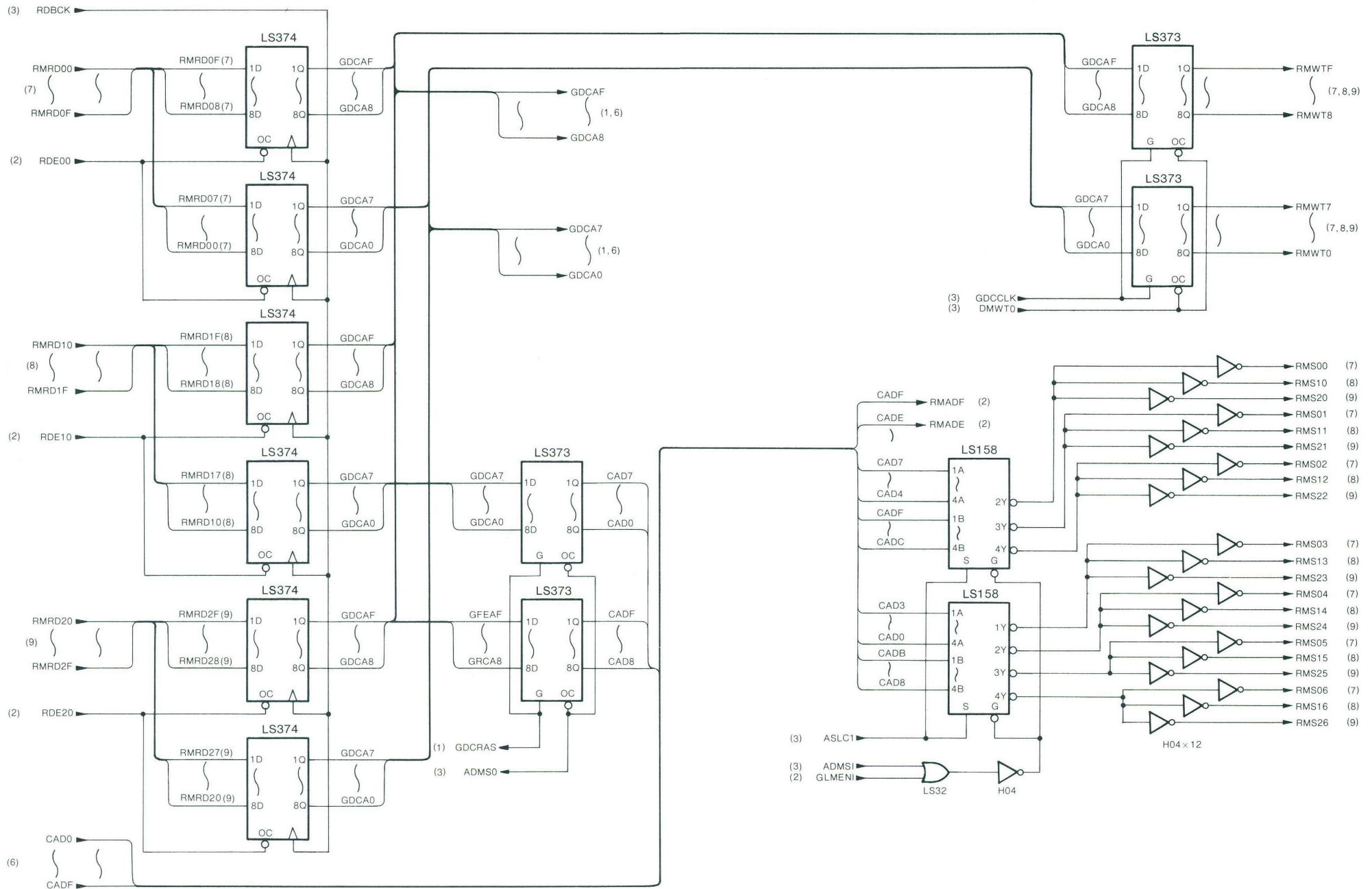


**Graphics (3) Graphics Dynamic Random Access Memory control 2**

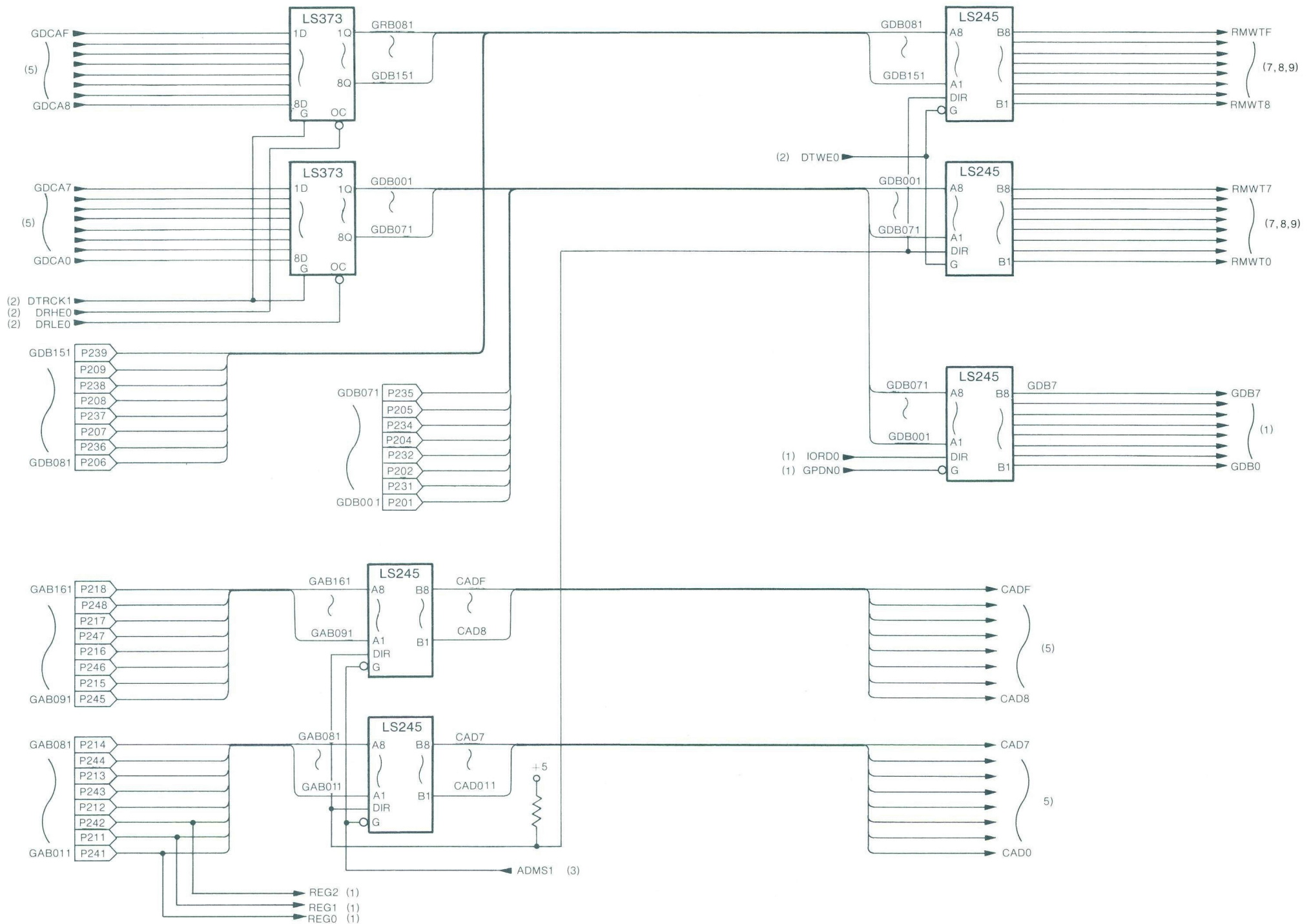




**Graphics (4) Graphics/Character Display Parallel to Serial Registers**

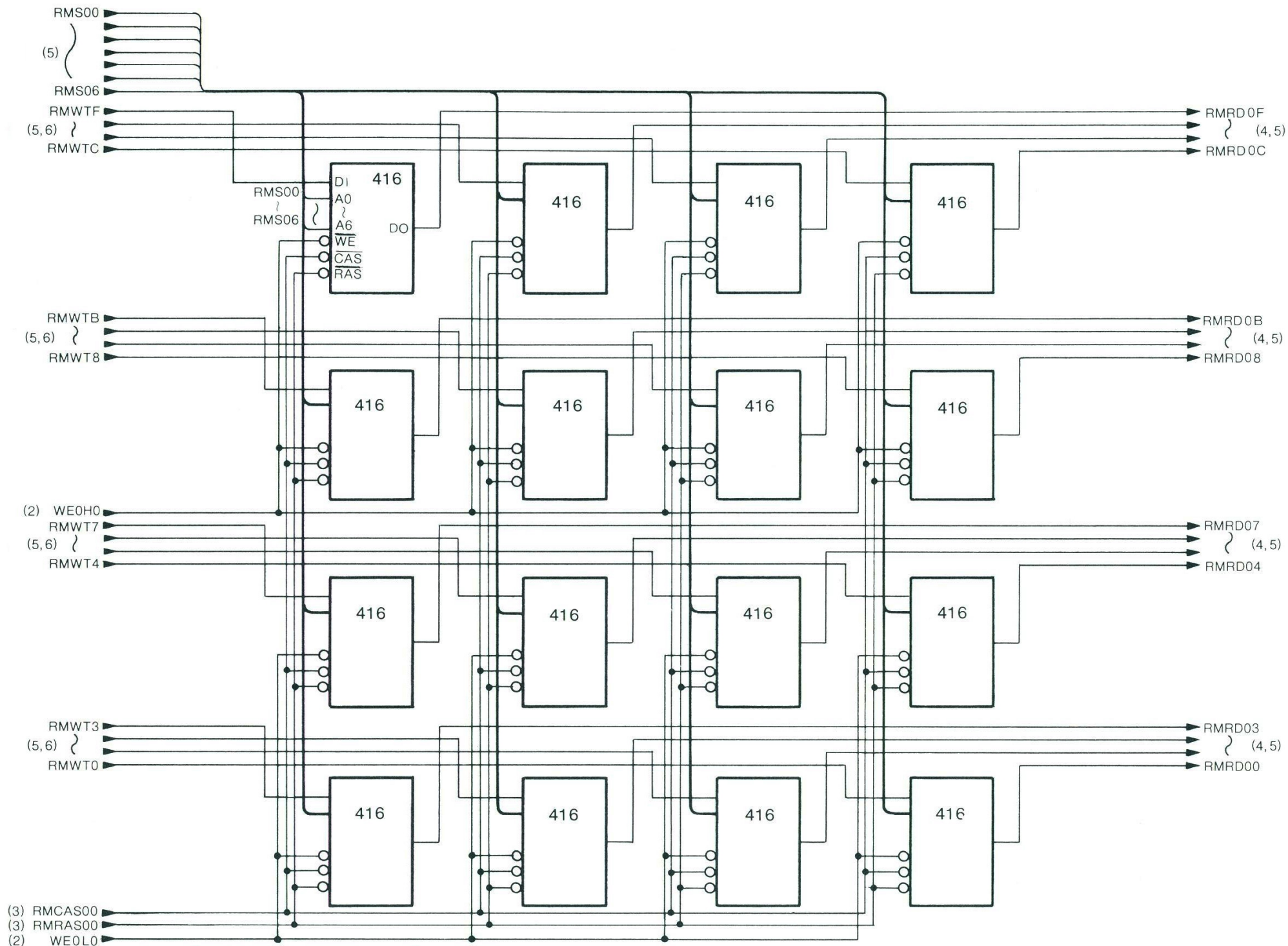


**Graphics (5) Graphics Dynamic Random Access Memory control 3**

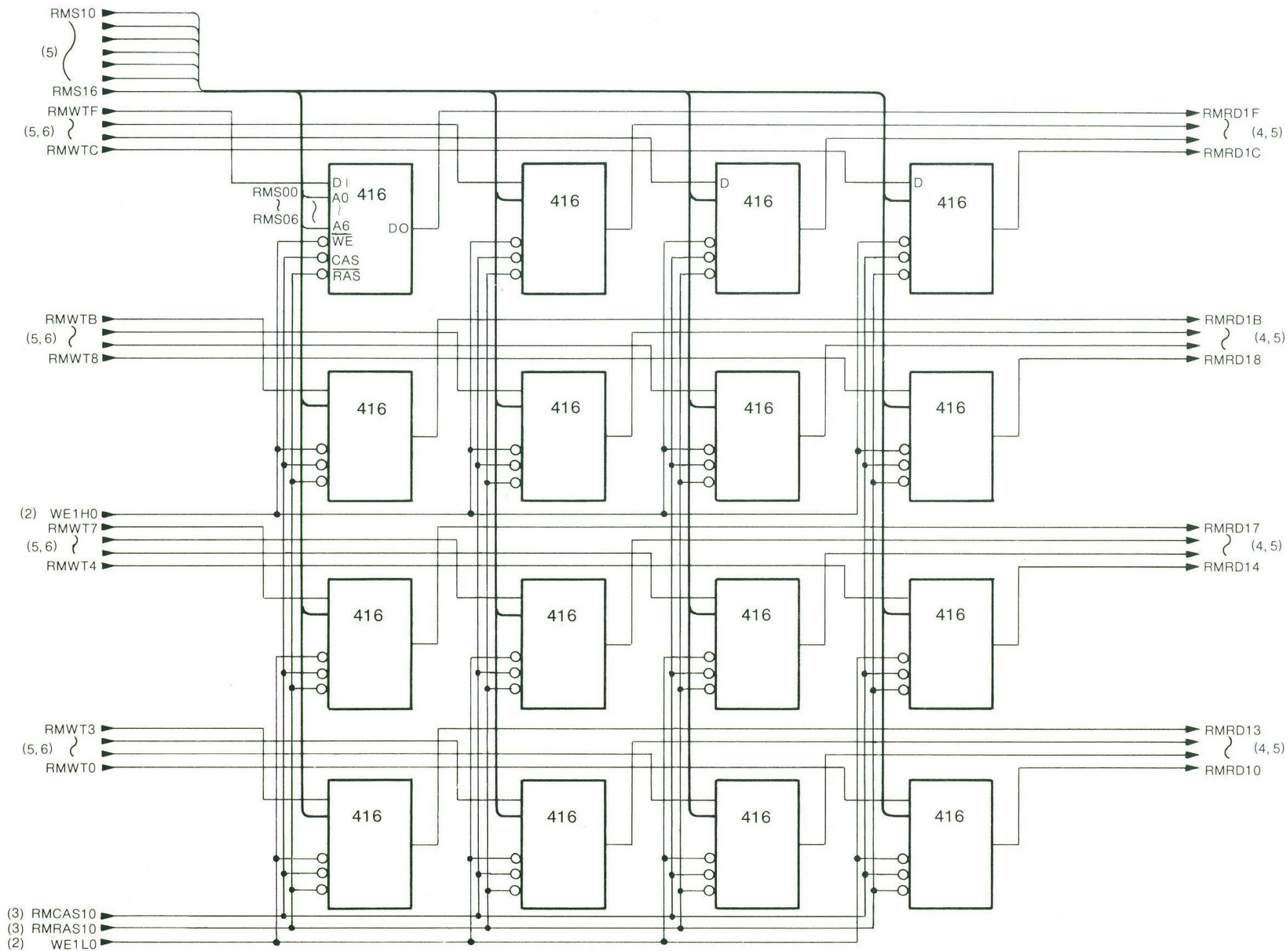


**Graphics (6) Graphics Dynamic Random Access Memory control 4**



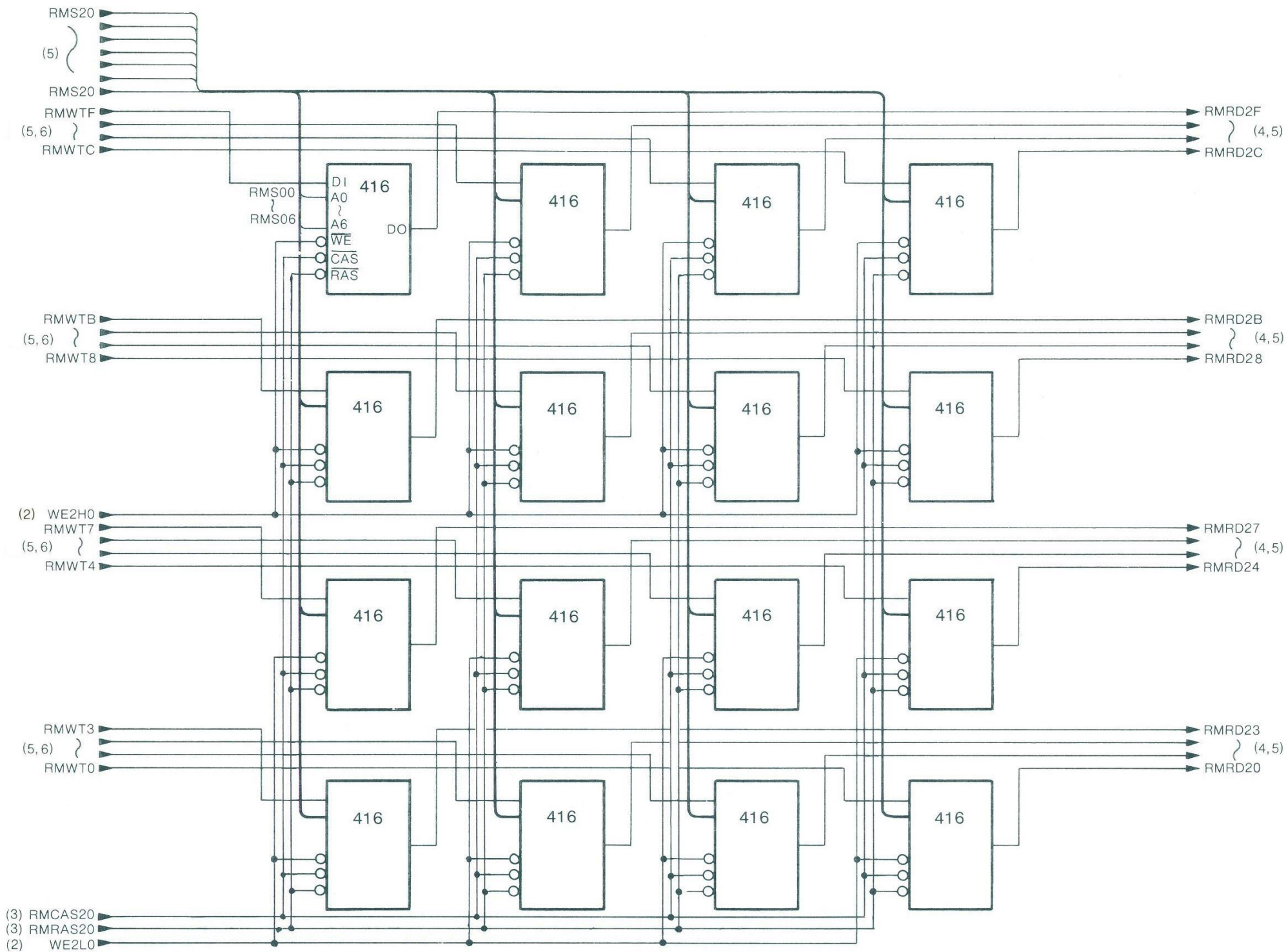


**Graphics (7) Graphics Dynamic Random Access Memory 1 (416 x 16)**



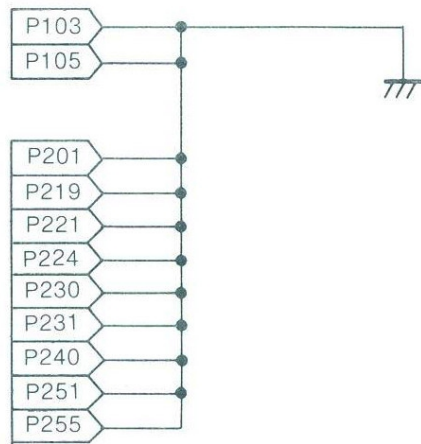
**Graphics (8) Graphics Dynamic Random Access Memory 2 (416 x 16)**





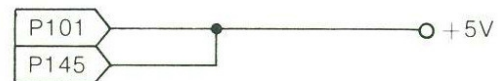
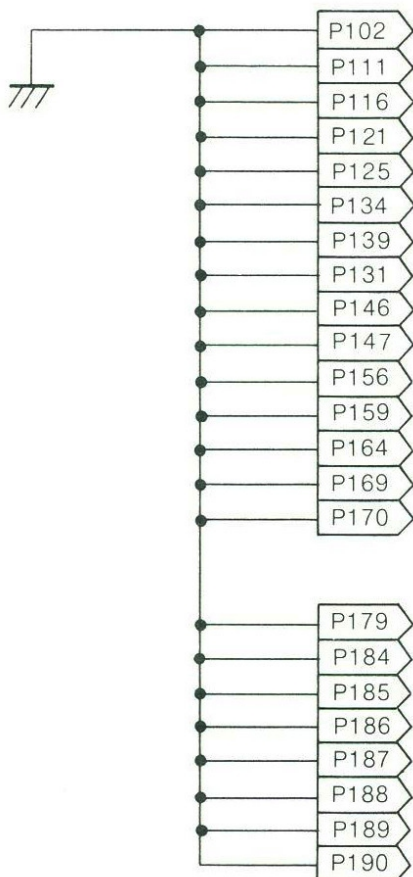
**Graphics (9) Graphics Dynamic Random Access Memory 3 (416 x 16)**



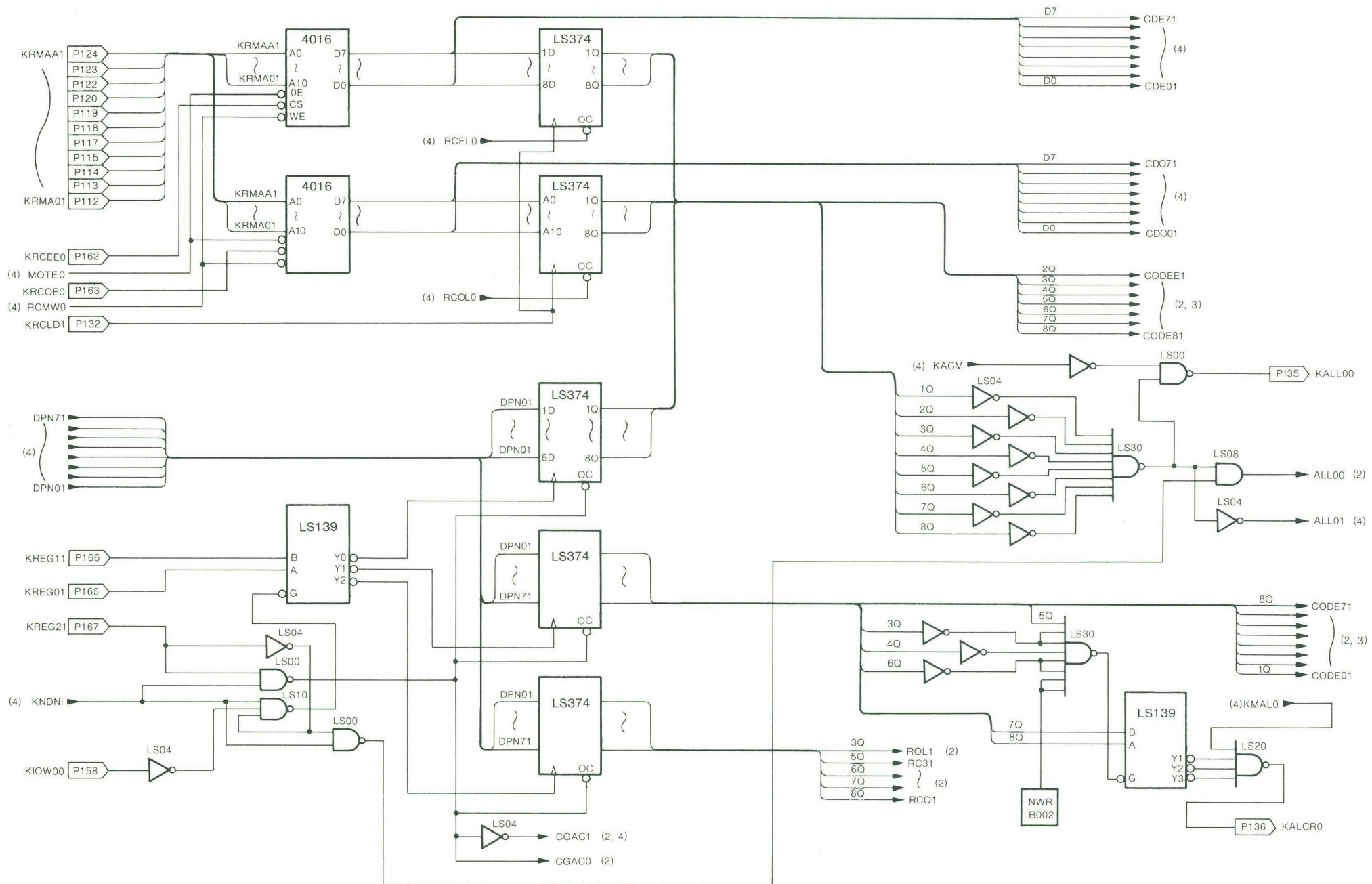


(3) GDTCLK1 P260 GPCLK0

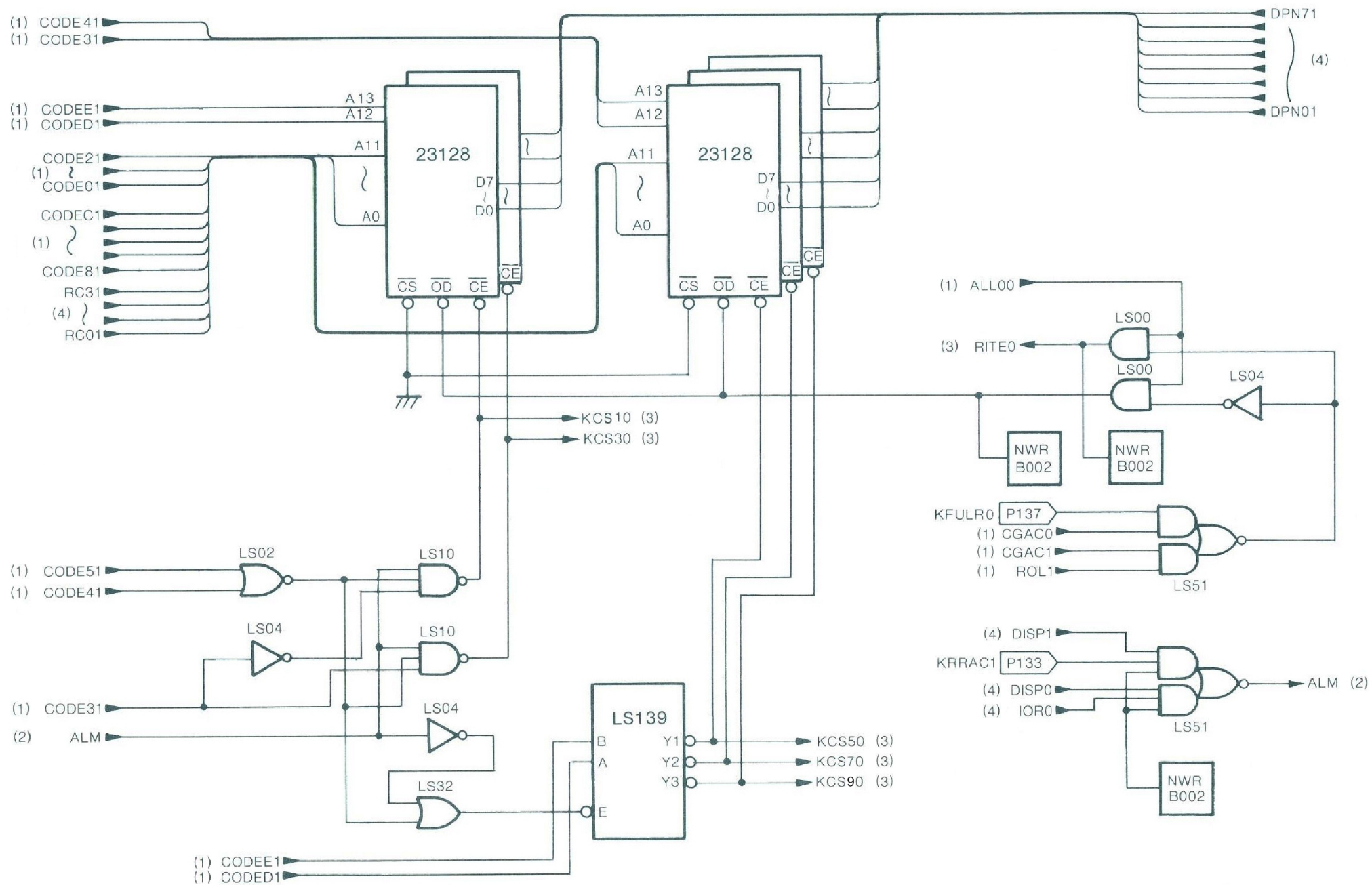
## Graphics (10) Graphics, Power pins



## Power pins

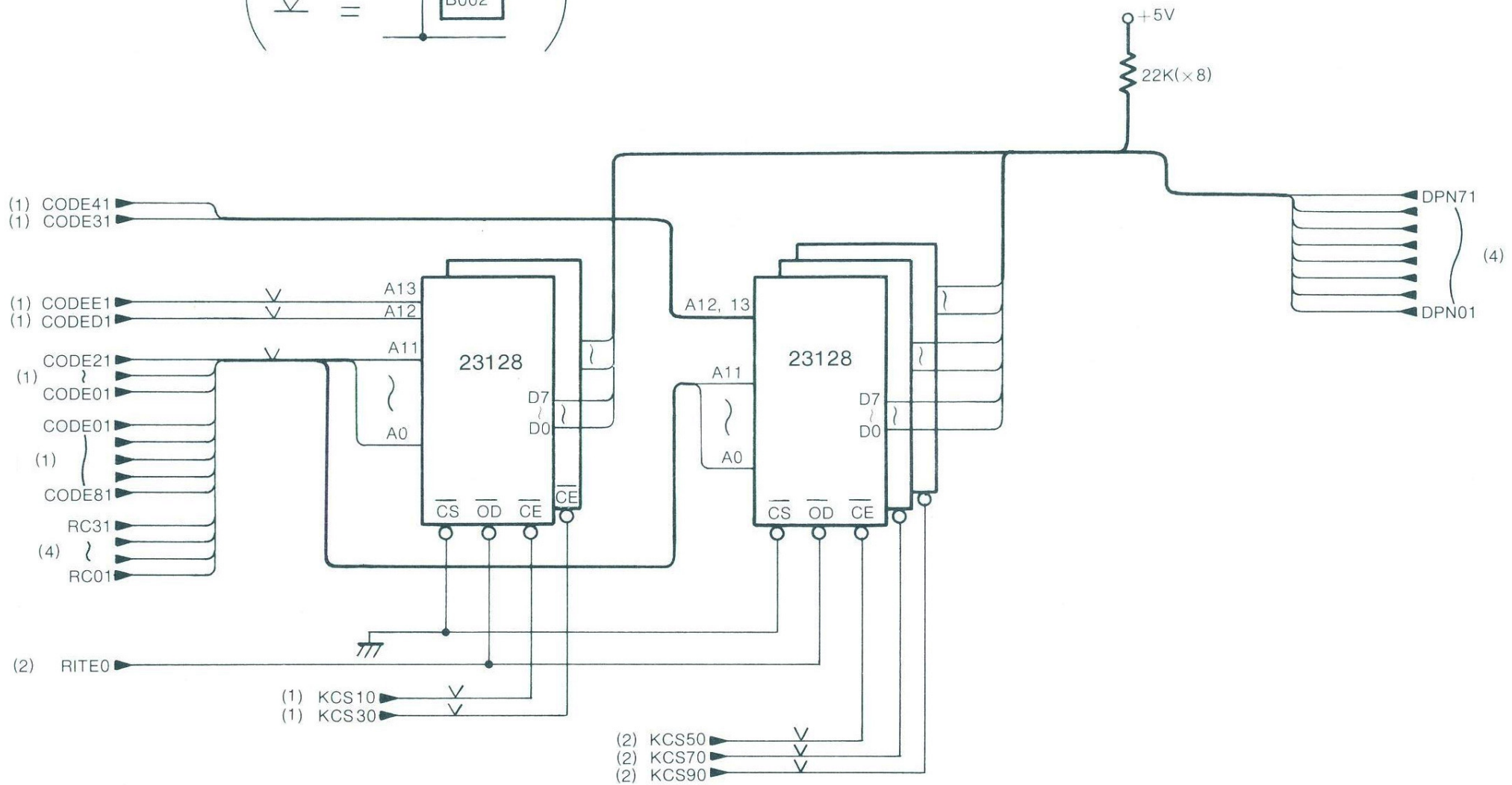
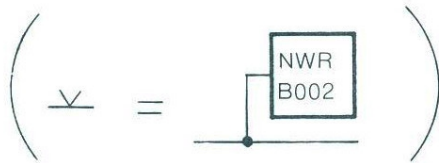


**Kanji ROM (1) Kanji Read Only Memory control 1**



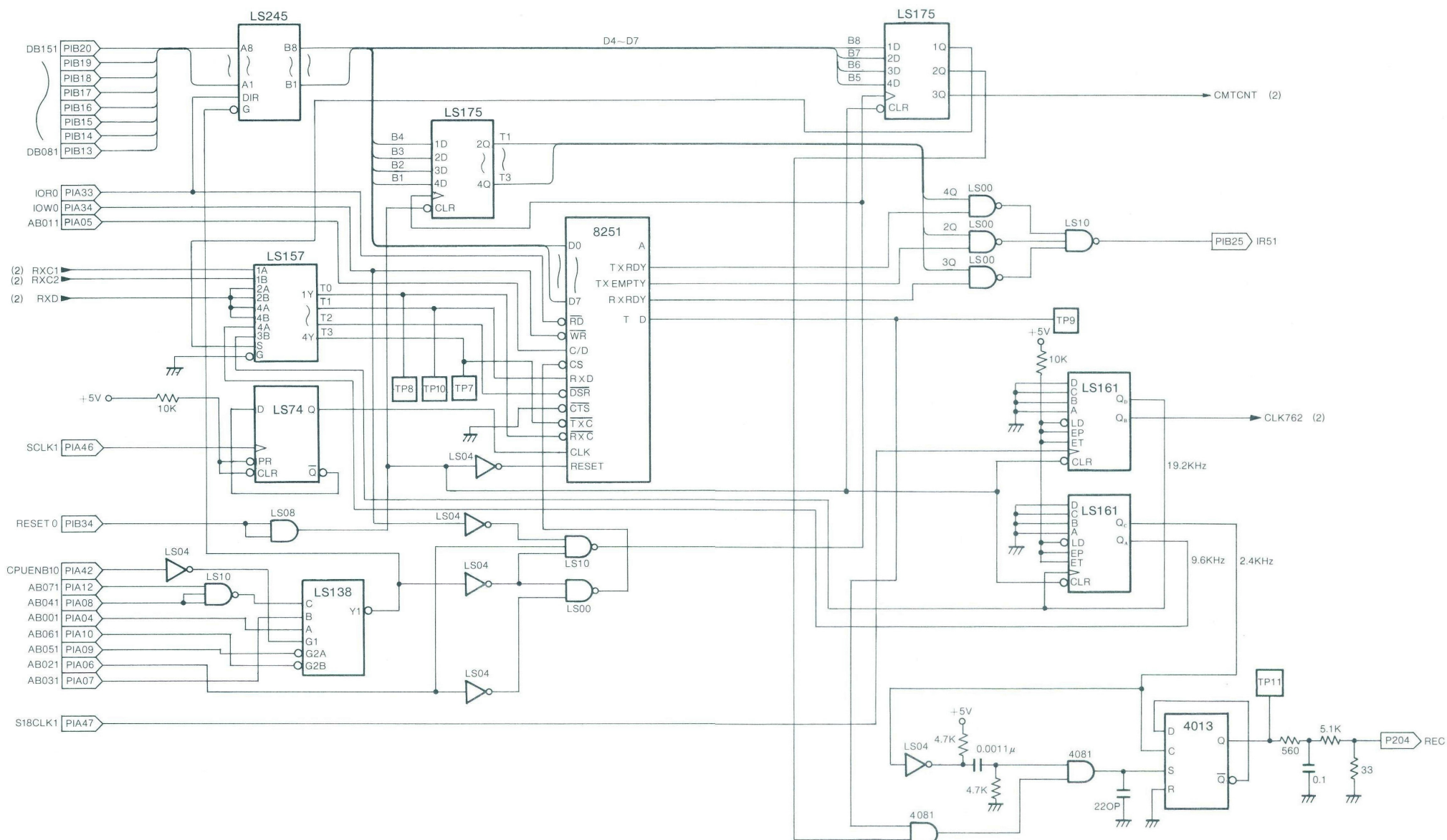
**Kanji ROM (2) Kanji Read Only Memory 1 (23128 x 5)**





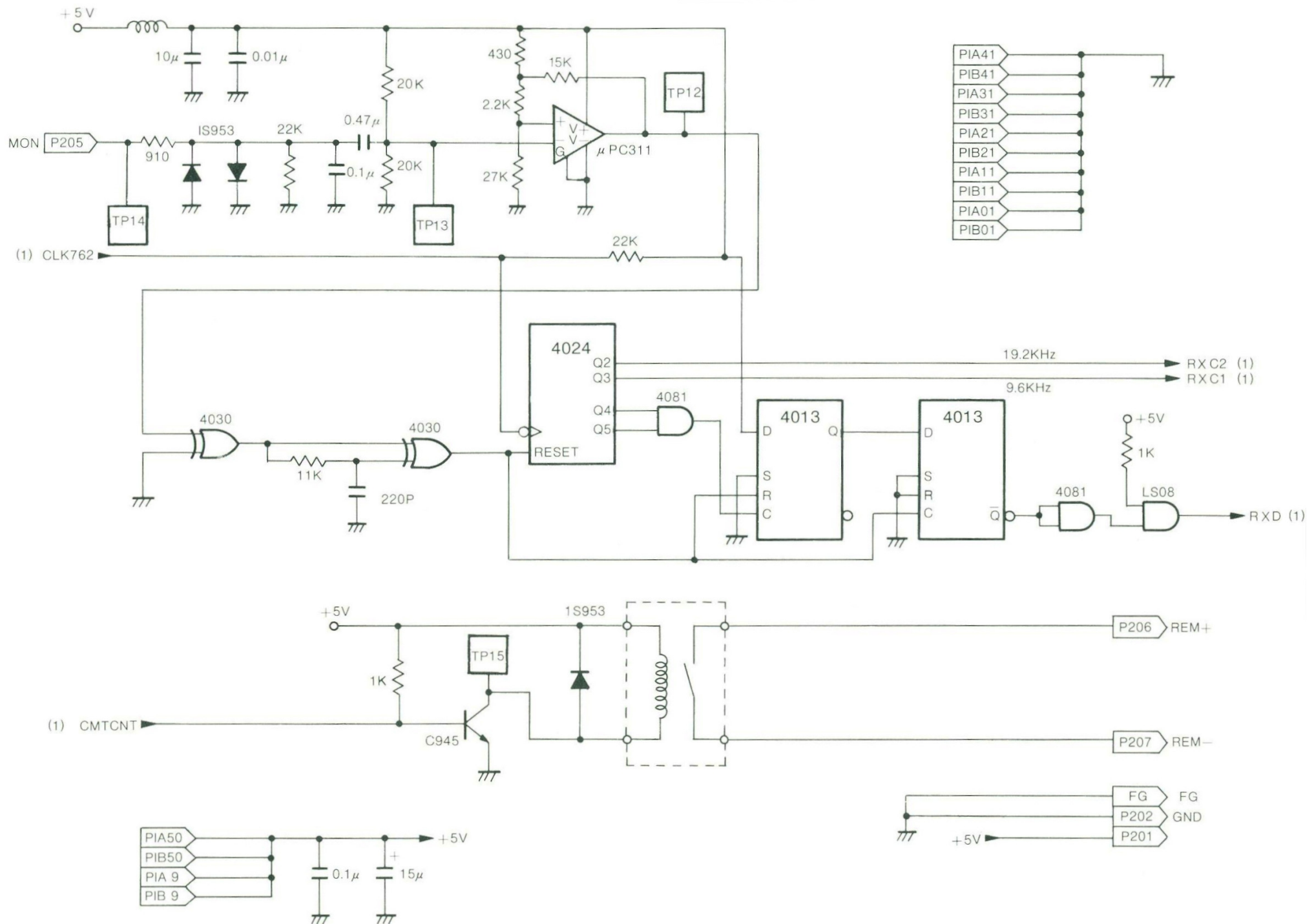
**Kanji ROM (3) Kanji Read Only Memory 2 (23128 x 5)**



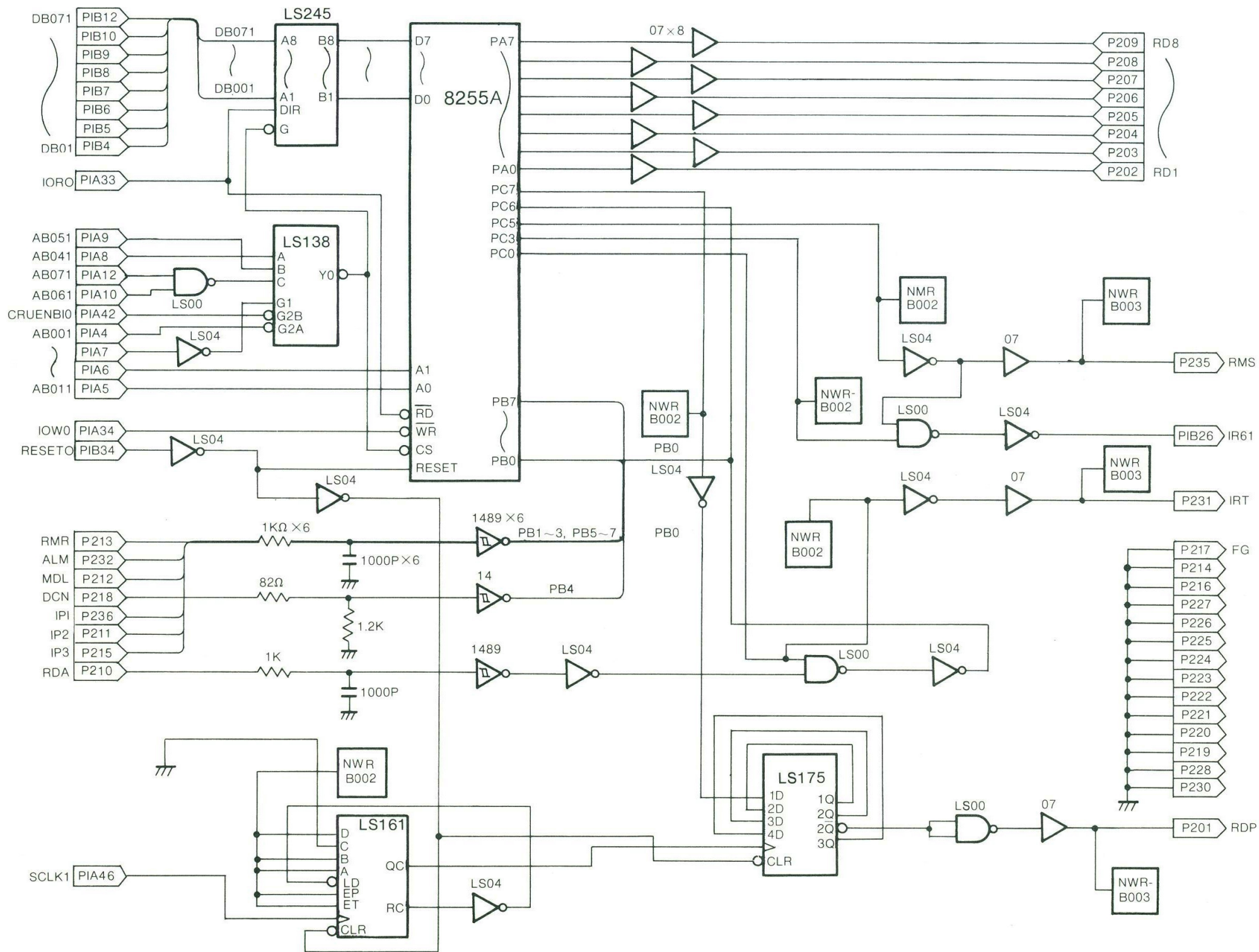


**CMT (1) Cassette Magnetic Tape (8251)**



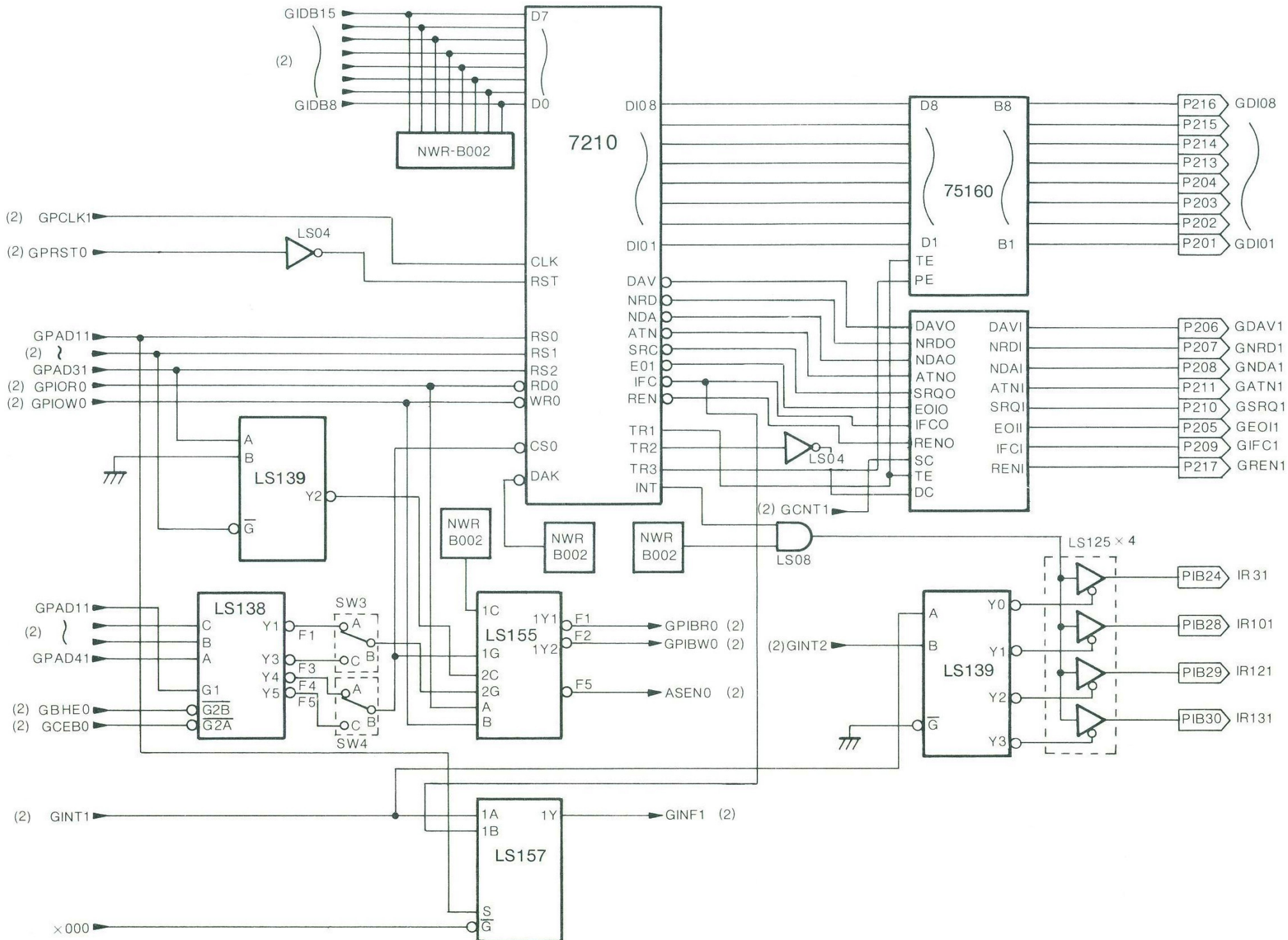


**CMT (2) Cassette Magnetic Tape control**



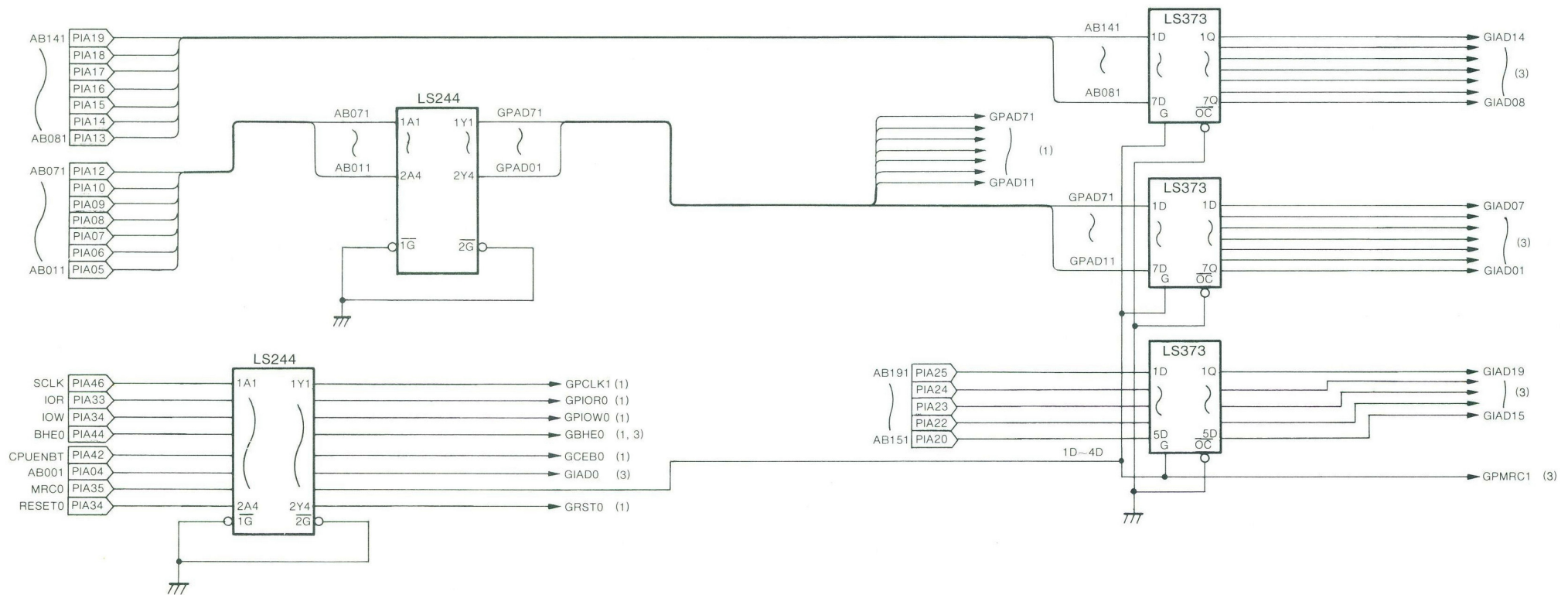
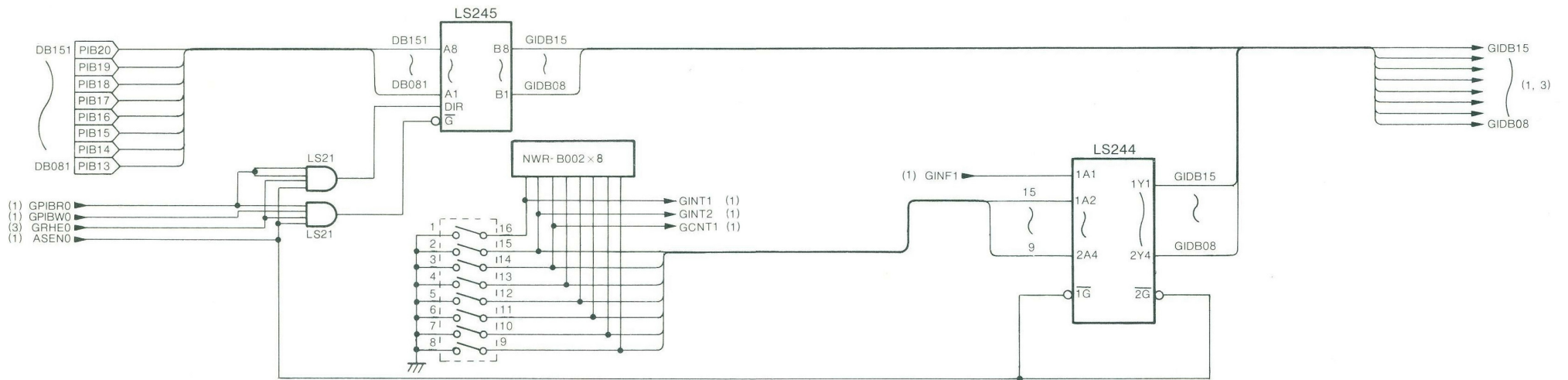
ODA control



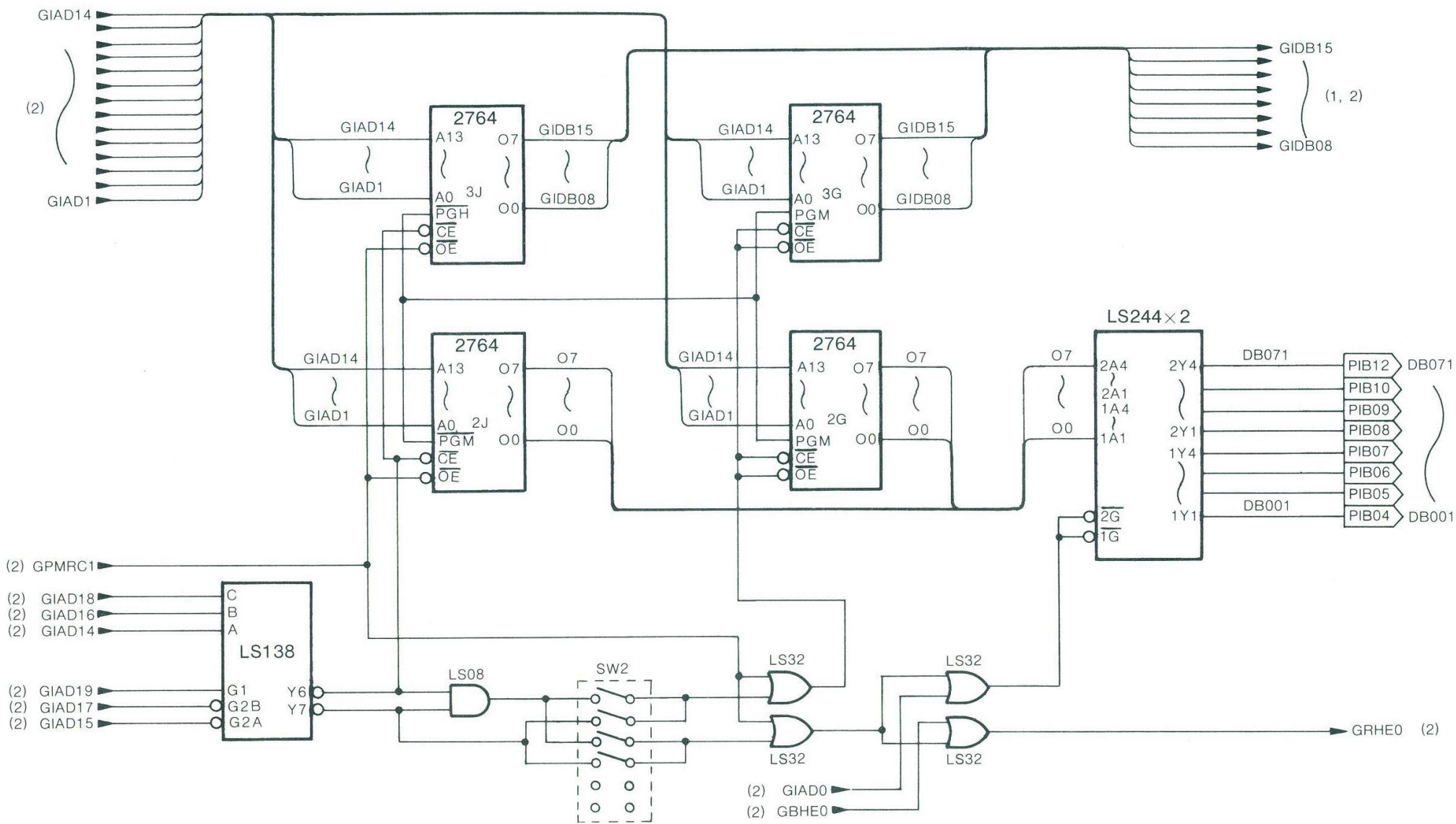


**GPIB (1) General Purpose Interface Bus (7210) control 1**





**GPIB (2) General Purpose Interface Bus control 2**



**GPIB (3) General Purpose Interface Bus control 3**

## I/O Map (Major Devices)

| Device                                    | Device<br>(Page) | Port Address A[7:0] |   |   |     |     |     |     |   | Signal  | Decoder<br>(page)      |
|-------------------------------------------|------------------|---------------------|---|---|-----|-----|-----|-----|---|---------|------------------------|
|                                           |                  | 7                   | 6 | 5 | 4   | 3   | 2   | 1   | 0 |         |                        |
| <b>8259</b> Interrupt Controller (Master) | MB (7)           | 0                   | 0 | 0 | 0   | 0   | X   | 1/0 | 0 | PIS00   | Motherboard<br>MB (4)  |
| <b>8259</b> Interrupt Controller (Slave)  |                  | 0                   | 0 | 0 | 0   | 1   | X   | 1/0 | 0 | PIS10   |                        |
| <b>8237</b> DMA Controller                | MB (2)           | 0                   | 0 | 0 | 1/0 | 1/0 | 1/0 | 1/0 | 1 | DMAS0   |                        |
| <b>1990</b> Calendar Clock                | MB (10)          | 0                   | 0 | 1 | 0   | X   | X   | X   | 0 | CALS0   |                        |
| DMA Bank (8237)                           | MB (2)           | 0                   | 0 | 1 | 0   | X   | 1/0 | 1/0 | 1 | DMBW0   |                        |
| <b>8251</b> RS-232C Port                  | MB (14)          | 0                   | 0 | 1 | 1   | X   | X   | 1/0 | 0 | RSCS0   |                        |
| <b>8255</b> System Port                   | MB (9)           | 0                   | 0 | 1 | 1   | X   | 1/0 | 1/0 | 1 | SYPS0   |                        |
| <b>8255</b> Centronics Printer Port       | MB (12)          | 0                   | 1 | 0 | 0   | X   | 1/0 | 1/0 | 0 | PRTS0   |                        |
| <b>8251</b> Keyboard Port                 | MB (13)          | 0                   | 1 | 0 | 0   | X   | X   | 1/0 | 1 | KBDS0   |                        |
| <b>7220</b> Character Display (Master)    | MB (22)          | 0                   | 1 | 0 | 1   | X   | X   | 1/0 | 0 | CHAS0   |                        |
| <b>8255</b> 5.25" Floppy Disk Drive Port  | MB (11)          | 0                   | 1 | 0 | 1   | X   | 1/0 | 1/0 | 1 | FD5S0   |                        |
| <b>52111</b> Character Smooth Scroll      | MB (23)          | 0                   | 1 | 1 | 0   | 1/0 | 1/0 | 1/0 | 0 | INTS0   |                        |
| NMI (Non-Maskable Interrupt)              | MB (7)           | 0                   | 1 | 1 | 1   | 1/0 | 1/0 | 1/0 | 0 | NMIW0   |                        |
| <b>8253</b> Timer                         | MB (8)           | 0                   | 1 | 1 | 1   | X   | 1/0 | 1/0 | 1 | TMRS0   |                        |
| <b>(7261</b> 5.25" Hard Disk Drive)       |                  | 1                   | 0 | 0 | 0   | 0   | 1/0 | 1/0 | 0 |         |                        |
| <b>765</b> 8"/5.25" Floppy Disk Drive     | MB (15)          | 1                   | 0 | 0 | 1   | X   | 1/0 | 1/0 | 0 | FFDS0   | MB (16)                |
| <b>8251</b> Cassette Magnetic Tape Port   | CMT (1)          | 1                   | 0 | 0 | 1   | 0   | 1/0 | 1/0 | 1 | No name | CMT (1)                |
| GPIB Switch                               | GPIB (2)         | 1                   | 0 | 0 | 1   | 1   | 1/0 | 1/0 | 1 |         | GPIB (1)               |
| <b>7220</b> Graphics Display (Slave)      | Graphics (1)     | 1                   | 0 | 1 | 0   | 1/0 | 1/0 | 1/0 | 0 | GRPS0   | Motherboard<br>MB (16) |
| <b>23128</b> Kanji ROM                    | Kanji ROM (2,3)  | 1                   | 0 | 1 | 0   | 1/0 | 1/0 | 1/0 | 1 | CHGS0   |                        |
| <b>8255</b> ODA printer port              | ODA (1)          | 1                   | 1 | 0 | 0   | 0   | 1/0 | 1/0 | 0 | No name | ODA (1)                |
| <b>7210</b> General Purpose Interface Bus | GPIB (1)         | 1                   | 1 | 0 | 0   | 1/0 | 1/0 | 1/0 | 1 | (p53)   | GPIB (1)               |

## Signal Abbreviation Examples (I/O Map related)

| Signal names |             | Abbreviation<br>methods | Active<br>level | Motherboard<br>at page |
|--------------|-------------|-------------------------|-----------------|------------------------|
| Original     | Abbreviated |                         |                 |                        |
| IOW0         | WTSTB0      | WriTe STRobe 0          | Low             | 4                      |
| IOR0         | RDSTB0      | ReaD STRobe 0           | Low             | 4                      |
| AB031        | RGS21       | ReGister Select 2 1     | High            | 4                      |
| AB021        | RGS11       | ReGister Select 1 1     | High            | 4                      |
| AB011        | RGS01       | ReGister Select 0 1     | High            | 4                      |
| --           | RGDCW0      | chaRacter GDC Write 0   | Low             | 4                      |
| --           | RGDCR0      | chaRacter GDC Read 0    | Low             | 4                      |



Connectors

| P1 Kanji ROM, Power pins           |         |     |       |         |     |       |         |     |
|------------------------------------|---------|-----|-------|---------|-----|-------|---------|-----|
| Kanji ROM (1, 2, 4), Graphics (10) |         |     |       |         |     |       |         |     |
| Pin #                              | Signals | I/O | Pin # | Signals | I/O | Pin # | Signals | I/O |
| 1                                  | +5V     | --  | 31    | GND     | --  | 61    | KRCOB0  | In  |
| 2                                  | GND     | --  | 32    | KRCLD1  | In  | 62    | KRCEE0  |     |
| 3                                  | KDPN01  | In  | 33    | KRRAC1  |     | 63    | KRCOE0  |     |
| 4                                  | KDPN11  |     | 34    | GND     | --  | 64    | GND     | --  |
| 5                                  | KDPN21  |     | 35    | KALL00  | Out | 65    | KREG01  | In  |
| 6                                  | KDPN31  |     | 36    | KALCR0  |     | 66    | KREG11  |     |
| 7                                  | KDPN41  |     | 37    | KFULR0  | In  | 67    | KREG21  |     |
| 8                                  | KDPN51  |     | 38    | KVSNC1  |     | 68    | KNGDN0  |     |
| 9                                  | KDPN61  |     | 39    | GND     | --  | 69    | GND     | --  |
| 10                                 | KDPN71  |     | 40    | KLCN01  | In  | 70    |         |     |
| 11                                 | GND     | --  | 41    | KLCN11  |     | 71    | KCOD01  | In  |
| 12                                 | KRMA01  | In  | 42    | KLCN21  |     | 72    | KCOD11  |     |
| 13                                 | KRMA11  |     | 43    | KLCN31  |     | 73    | KCOD21  |     |
| 14                                 | KRMA21  |     | 44    | --      | --  | 74    | KCOD31  |     |
| 15                                 | KRMA31  |     | 45    | +5V     | --  | 75    | KCOD41  |     |
| 16                                 | GND     | --  | 46    | GND     | --  | 76    | KCOD51  |     |
| 17                                 | KRMA41  | In  | 47    |         |     | 77    | KCOD61  |     |
| 18                                 | KRMA51  |     | 48    | KDB081  | In  | 78    | KCOD71  |     |
| 19                                 | KRMA61  |     | 49    | KDB091  |     | 79    | GND     | --  |
| 20                                 | KRMA71  |     | 50    | KDB101  |     | 80    | KRAEL0  | In  |
| 21                                 | GND     | --  | 51    | KDB111  |     | 81    | KRAOL0  |     |
| 22                                 | KRMA81  | In  | 52    | KDB121  |     | 82    | --      | --  |
| 23                                 | KRMA91  |     | 53    | KDB131  |     | 83    | KRMWC1  | In  |
| 24                                 | KRMAA1  |     | 54    | KDB141  |     | 84    | GND     | --  |
| 25                                 | GND     | --  | 55    | KDB151  |     | 85    |         |     |
| 26                                 | KRWBE0  | In  | 56    | GND     | --  | 86    |         |     |
| 27                                 | KRRBE1  |     | 57    | --      | --  | 87    |         |     |
| 28                                 | KBME11  |     | 58    | KIOW00  | In  | 88    |         |     |
| 29                                 | KRBCK1  |     | 59    | GND     | --  | 89    |         |     |
| 30                                 | KKACM1  |     | 60    | KRCEB0  | In  | 90    |         |     |

| P1 Display Monitor |         |     |
|--------------------|---------|-----|
| Motherboard (24)   |         |     |
| Pin #              | Signals | I/O |
| 1                  | +12V    | --  |
| 2                  | GND     | --  |
| 3                  | CLOCK   | Out |
| 4                  | HSYNC   |     |
| 5                  | VSYNC   |     |
| 6                  | R       |     |
| 7                  | G       |     |
| 8                  | B       |     |

| P2 Graphics<br>Graphics (1, 2, 3, 4, 6, 10) |         |     |  |       |             |
|---------------------------------------------|---------|-----|--|-------|-------------|
| Pin #                                       | Signals | I/O |  | Pin # | Signals I/O |
| 1                                           | GND     | --  |  | 31    | GND --      |
| 2                                           |         |     |  | 32    |             |
| 3                                           |         |     |  | 33    |             |
| 4                                           |         |     |  | 34    |             |
| 5                                           |         |     |  | 35    |             |
| 6                                           | GDB081  | In  |  | 36    | GDB091 In   |
| 7                                           | GDB101  |     |  | 37    | GDB111      |
| 8                                           | GDB121  |     |  | 38    | GDB131      |
| 9                                           | GDB141  |     |  | 39    | GDB151      |
| 10                                          | GAB001  |     |  | 40    | GND --      |
| 11                                          | GAB021  |     |  | 41    | GAB011 In   |
| 12                                          | GAB041  |     |  | 42    | GAB031      |
| 13                                          | GAB061  |     |  | 43    | GAB051      |
| 14                                          | GAB081  |     |  | 44    | GAB071      |
| 15                                          | GAB101  |     |  | 45    | GAB091      |
| 16                                          | GAB121  |     |  | 46    | GAB111      |
| 17                                          | GAB141  |     |  | 47    | GAB131      |
| 18                                          | GAB161  |     |  | 48    | GAB151      |
| 19                                          | GND     | --  |  | 49    | GVSNC0      |
| 20                                          | GDTCK1  | In  |  | 50    | GGCK21      |
| 21                                          | GND     | --  |  | 51    | GND --      |
| 22                                          | GLOAD1  | In  |  | 52    | GPD01 Out   |
| 23                                          | GRDSP1  |     |  | 53    | GPD11       |
| 24                                          | GND     | --  |  | 54    | GPD21       |
| 25                                          | GBHE00  | In  |  | 55    | GND --      |
| 26                                          | GGMAC1  |     |  | 56    | GIOR00 In   |
| 27                                          | GLMEN1  |     |  | 57    | GIOW00      |
| 28                                          | GBNK0   | Out |  | 58    | GRMRC1      |
| 29                                          | GRPGN0  | In  |  | 59    | GRMWC1      |
| 30                                          | GND     | --  |  | 60    | GPCLK0 Out  |

| P2 GPIB<br>GPIB (1) |         |     |
|---------------------|---------|-----|
| Pin #               | Signals | I/O |
| 1                   | GDI01   | Out |
| 2                   | GDI02   |     |
| 3                   | GDI03   |     |
| 4                   | GDI04   |     |
| 5                   | GEOI1   |     |
| 6                   | GDAV1   |     |
| 7                   | GNRD1   |     |
| 8                   | GNDA1   |     |
| 9                   | GIFC1   | Out |
| 10                  | GSRQ1   |     |
| 11                  | GATN1   |     |
| 12                  |         |     |
| 13                  | GDI05   |     |
| 14                  | GDI06   |     |
| 15                  | GDI07   |     |
| 16                  | GDI08   |     |
| 17                  | GREN1   |     |

| P2 ODA<br>ODA |         |     |
|---------------|---------|-----|
| Pin #         | Signals | I/O |
| 1             | RDP     | Out |
| 2             | RD1     |     |
| 3             | RD2     |     |
| 4             | RD3     |     |
| 5             | RD4     |     |
| 6             | RD5     |     |
| 7             | RD6     |     |
| 8             | RD7     | In  |
| 9             | RD8     |     |
| 10            | RDA     |     |
| 11            | IP2     |     |
| 12            | MDL     | --  |
| 13            | RMR     |     |
| 14            | GND     | In  |
| 15            | IP3     |     |
| 16            | GND     | --  |
| 17            |         |     |
| 18            | DCN     | In  |
| 19            | GND     | --  |
| 20            |         |     |
| 21            |         |     |
| 22            |         |     |
| 23            |         |     |
| 24            |         |     |
| 25            |         |     |
| 26            |         |     |
| 27            |         |     |
| 28            |         |     |
| 29            |         |     |
| 30            | GND     | --  |
| 31            |         |     |
| 32            | ALM     | In  |
| 33            |         |     |
| 34            |         |     |
| 35            |         |     |
| 36            | IPI     | In  |

| P2 Light Pen<br>Motherboard (24) |         |     |
|----------------------------------|---------|-----|
| Pin #                            | Signals | I/O |
| 1                                | +12V    | --  |
| 2                                | GND     | --  |
| 3                                | LPENO   | Out |
| 4                                |         |     |
| 5                                | LPENI   | In  |

| P2 CMT<br>CMT (1, 2) |         |     |
|----------------------|---------|-----|
| Pin #                | Signals | I/O |
| 1                    | +5V     | --  |
| 2                    | GND     | --  |
| 3                    | --      | --  |
| 4                    | REC     | Out |
| 5                    | MON     | In  |
| 6                    | REM+    | Out |
| 7                    | REM-    |     |
| 8                    | --      | --  |

| P12 Keyboard<br>Motherboard (13) |         |                     |     |
|----------------------------------|---------|---------------------|-----|
| Pin #                            | Signals | Description         | I/O |
| 1                                | RTY0    | Transmitter Data    | Out |
| 2                                | GND     | Ground              | --  |
| 3                                | RDY0    | Request to Send     | Out |
| 4                                | RxD1    | Receive Data        | In  |
| 5                                | RST0    | Data Terminal Ready | Out |
| 6                                | DSR0    | Data Set Ready      | In  |
| 7                                | --      | --                  | --  |
| 8                                | +5V     | Supply Voltage      |     |



| P03 Floppy Disk 8255 ports<br>Motherboard (11) |         |     |
|------------------------------------------------|---------|-----|
| Pin #                                          | Signals | I/O |
| 1                                              | PB0     | I/O |
| 2                                              | PB1     |     |
| 3                                              | PB2     |     |
| 4                                              | PB3     |     |
| 5                                              | PB4     |     |
| 6                                              | PB5     |     |
| 7                                              | PB6     |     |
| 8                                              | PB7     |     |
| 9                                              | GND     | --  |
| 10                                             |         |     |
| 11                                             |         |     |
| 12                                             |         |     |
| 13                                             |         |     |
| 14                                             |         |     |
| 15                                             |         |     |
| 16                                             |         |     |
| 17                                             |         |     |
| 18                                             |         |     |
| 19                                             | PA0     | I/O |
| 20                                             | PA1     |     |
| 21                                             | PA2     |     |
| 22                                             | PA3     |     |
| 23                                             | PA4     |     |
| 24                                             | PA5     |     |
| 25                                             | PA6     |     |
| 26                                             | PA7     |     |
| 27                                             | PC4     |     |
| 28                                             | PC5     |     |
| 29                                             | PC6     |     |
| 30                                             | PC7     |     |
| 31                                             | PC0     |     |
| 32                                             | PC1     |     |
| 33                                             | PC2     |     |
| 34                                             | PC3     |     |
| 35                                             | RESET0  | In  |
| 36                                             | GND     | --  |

| P04 RS232C D-Sub DB25<br>Motherboard (14) |         |                      |     |
|-------------------------------------------|---------|----------------------|-----|
| Pin #                                     | Signals | Description          | I/O |
| 1                                         | GND     | --                   |     |
| 2                                         | SD      | Send Data            | Out |
| 3                                         | RD      | Receive Data         | In  |
| 4                                         | RS      | Request to Send      | Out |
| 5                                         | CS      | Clear to Send        | In  |
| 6                                         | DR      | Data set Ready       | In  |
| 7                                         | GND     | Ground               | --  |
| 8                                         | CD      | Carrier Detect       | In  |
| 9                                         | --      | --                   |     |
| 10                                        |         |                      |     |
| 11                                        | GND     | Ground               | --  |
| 12                                        | --      | --                   |     |
| 13                                        | GND     | Ground               | --  |
| 14                                        |         |                      |     |
| 15                                        | ST2     | Transmit Clock       | In  |
| 16                                        | --      | --                   |     |
| 17                                        | RT      | Receive Clock        | In  |
| 18                                        | --      | --                   |     |
| 19                                        |         |                      |     |
| 20                                        | ER      | Data Terminal Ready  | Out |
| 21                                        | --      | --                   |     |
| 22                                        |         |                      |     |
| 23                                        | SDS     | Signal Rate Selector | Out |
| 24                                        | ST1     | Auxiliary Clock      | Out |
| 25                                        | --      | --                   |     |

| P05 Centronics Printer<br>Motherboard (12) |         |             |     |
|--------------------------------------------|---------|-------------|-----|
| Pin #                                      | Signals | Description | I/O |
| 1                                          | STB     | Strobe      | Out |
| 2                                          | RD1     | Data bit 0  |     |
| 3                                          | RD2     | Data bit 1  |     |
| 4                                          | RD3     | Data bit 2  |     |
| 5                                          | RD4     | Data bit 3  |     |
| 6                                          | RD5     | Data bit 4  |     |
| 7                                          | RD6     | Data bit 5  |     |
| 8                                          | RD7     | Data bit 6  |     |
| 9                                          | RD8     | Data bit 7  |     |
| 10                                         | ACK0    | Acknowledge | In  |
| 11                                         | BUSY    | Busy        |     |
| 12                                         | PE      | Paper Empty |     |
| 13                                         | SELECT  | Select      |     |
| 14                                         | AF      | Auto Feed   | Out |
| 15                                         |         | (Error)     | In  |
| 16                                         |         | (Reset)     | Out |
| 17                                         |         | (Select)    |     |
| 18                                         | GND     | --          |     |
| 19                                         |         |             |     |
| 20                                         |         |             |     |
| 21                                         |         |             |     |
| 22                                         |         |             |     |
| 23                                         |         |             |     |
| 24                                         |         |             |     |
| 25                                         |         |             |     |

| P06 Floppy Disk<br>Motherboard (15) |         |       |         |                   |     |  |  |
|-------------------------------------|---------|-------|---------|-------------------|-----|--|--|
| Pin #                               | Signals | Pin # | Signals | Description       | I/O |  |  |
| 1                                   | GND     | 2     | FLWC0   | Low Write Current | Out |  |  |
| 3                                   |         | 4     | FFLR0   | File Unsafe Reset |     |  |  |
| 5                                   |         | 6     | FFUS0   | File Unsafe       | In  |  |  |
| 7                                   |         | 8     | --      | --                | --  |  |  |
| 9                                   |         | 10    | FTSD0   | Two Sided         | In  |  |  |
| 11                                  |         | 12    | --      | (Disk Change)     | --  |  |  |
| 13                                  |         | 14    | FSSL0   | Side Select       | Out |  |  |
| 15                                  |         | 16    | --      | --                | --  |  |  |
| 17                                  |         | 18    | FHLD0   | Head Load         | Out |  |  |
| 19                                  |         | 20    | FIDX0   | Index             | In  |  |  |
| 21                                  |         | 22    | FRDY0   | Ready             | In  |  |  |
| 23                                  |         | 24    | FSYC0   | VFO Sync          | Out |  |  |
| 25                                  |         | 26    | FDS10   | Drive Select 1    |     |  |  |
| 27                                  |         | 28    | FDS20   | Drive Select 2    |     |  |  |
| 29                                  |         | 30    | FDS30   | Drive Select 3    |     |  |  |
| 31                                  |         | 32    | FDS40   | Drive Select 4    |     |  |  |
| 33                                  |         | 34    | FDIR0   | Direction Select  |     |  |  |
| 35                                  |         | 36    | FSTP0   | Step              |     |  |  |
| 37                                  |         | 38    | FWDT0   | Write Data        |     |  |  |
| 39                                  |         | 40    | FWGT0   | Write Gate        |     |  |  |
| 41                                  |         | 42    | FTK00   | Track 00          | In  |  |  |
| 43                                  |         | 44    | FPRT0   | Write Protect     |     |  |  |
| 45                                  |         | 46    | FRDT0   | Read Data         | Out |  |  |
| 47                                  |         | 48    | FMFM0   | VFO MFM           |     |  |  |
| 49                                  |         | 50    | FWID0   | VFO Window        | In  |  |  |

**P7, PI General Expansion Bus**  
Motherboard (17, 18)

|              |                | <b>A</b>     |                |              |                | <b>B</b>     |                |
|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|
| <b>Pin #</b> | <b>Signals</b> | <b>Pin #</b> | <b>Signals</b> | <b>Pin #</b> | <b>Signals</b> | <b>Pin #</b> | <b>Signals</b> |
| <b>1</b>     | GND            | <b>26</b>    | (AB201)        | <b>1</b>     | GND            | <b>26</b>    | IR61           |
| <b>2</b>     |                | <b>27</b>    | (AB211)        | <b>2</b>     |                | <b>27</b>    | IR91           |
| <b>3</b>     |                | <b>28</b>    | (AB221)        | <b>3</b>     |                | <b>28</b>    | IR101          |
| <b>4</b>     | AB001          | <b>29</b>    | (AB231)        | <b>4</b>     | DB001          | <b>29</b>    | IR121          |
| <b>5</b>     | AB011          | <b>30</b>    | INT0           | <b>5</b>     | DB011          | <b>30</b>    | IR131          |
| <b>6</b>     | AB021          | <b>31</b>    | GND            | <b>6</b>     | DB021          | <b>31</b>    | GND            |
| <b>7</b>     | AB031          | <b>32</b>    | IOCHK0         | <b>7</b>     | DB031          | <b>32</b>    | -12V           |
| <b>8</b>     | AB041          | <b>33</b>    | IOR0           | <b>8</b>     | DB041          | <b>33</b>    |                |
| <b>9</b>     | AB051          | <b>34</b>    | IOW0           | <b>9</b>     | DB051          | <b>34</b>    | RESET0         |
| <b>10</b>    | AB061          | <b>35</b>    | MRC0           | <b>10</b>    | DB061          | <b>35</b>    | DACK00         |
| <b>11</b>    | GND            | <b>36</b>    | MWC0           | <b>11</b>    | GND            | <b>36</b>    | DACK30         |
| <b>12</b>    | AB071          | <b>37</b>    | S00            | <b>12</b>    | DB071          | <b>37</b>    | DRQ00          |
| <b>13</b>    | AB081          | <b>38</b>    | S10            | <b>13</b>    | DB081          | <b>38</b>    | DRQ30          |
| <b>14</b>    | AB091          | <b>39</b>    | S20            | <b>14</b>    | DB091          | <b>39</b>    | WORD0          |
| <b>15</b>    | AB101          | <b>40</b>    | LOCK0          | <b>15</b>    | DB101          | <b>40</b>    | CPKILL0        |
| <b>16</b>    | AB111          | <b>41</b>    | GND            | <b>16</b>    | DB111          | <b>41</b>    | GND            |
| <b>17</b>    | AB121          | <b>42</b>    | CPUENB10       | <b>17</b>    | DB121          | <b>42</b>    | RQGT0          |
| <b>18</b>    | AB131          | <b>43</b>    | RFSH0          | <b>18</b>    | DB131          | <b>43</b>    | DMATC0         |
| <b>19</b>    | AB141          | <b>44</b>    | BHE0           | <b>19</b>    | DB141          | <b>44</b>    | NMI0           |
| <b>20</b>    | AB151          | <b>45</b>    | IORDY1         | <b>20</b>    | DB151          | <b>45</b>    | MWE0           |
| <b>21</b>    | GND            | <b>46</b>    | SCLK1          | <b>21</b>    | GND            | <b>46</b>    | HLDA00         |
| <b>22</b>    | AB161          | <b>47</b>    | S18CLK1        | <b>22</b>    | +12V           | <b>47</b>    | HRQ00          |
| <b>23</b>    | AB171          | <b>48</b>    | POWER0         | <b>23</b>    |                | <b>48</b>    | DMAHLD0        |
| <b>24</b>    | AB181          | <b>49</b>    | +5V            | <b>24</b>    | IR31           | <b>49</b>    | +5V            |
| <b>25</b>    | AB191          | <b>50</b>    |                | <b>25</b>    | IR51           | <b>50</b>    |                |



**P10 Character**  
Motherboard (25, 26)

| Pin # | Signals | I/O | Pin # | Signals | I/O |
|-------|---------|-----|-------|---------|-----|
| 1     | GND     | --  | 31    | GND     | --  |
| 2     | GDB001  | I/O | 32    | GDB011  | I/O |
| 3     | GDB021  |     |       |         |     |
| 4     | GDB041  |     |       |         |     |
| 5     | GDB061  |     |       |         |     |
| 6     | GDB081  |     |       |         |     |
| 7     | GDB101  |     |       |         |     |
| 8     | GDB121  |     |       |         |     |
| 9     | GDB141  |     |       |         |     |
| 10    | GAB001  |     | Out   | 40      |     |
| 11    | GAB021  | 41  |       | GAB011  | Out |
| 12    | GAB041  | 42  |       | GAB031  |     |
| 13    | GAB061  | 43  |       | GAB051  |     |
| 14    | GAB081  | 44  |       | GAB071  |     |
| 15    | GAB101  | 45  |       | GAB091  |     |
| 16    | GAB121  | 46  |       | GAB111  |     |
| 17    | GAB141  | 47  |       | GAB131  |     |
| 18    | GAB161  | 48  |       | GAB151  |     |
| 19    | GND     | --  | 49    | --      |     |
| 20    |         |     | 50    |         |     |
| 21    | GND     | --  | 51    | GND     | --  |
| 22    | --      |     | 52    | GPDT01  | In  |
| 23    |         |     | 53    | GPDT11  |     |
| 24    |         |     | 54    | GPDT21  |     |
| 25    | GBHE00  | Out | 55    | GND     | --  |
| 26    | GGMAC1  |     | 56    | GIOR00  | Out |
| 27    | GLMEN1  |     | 57    | GIOW00  |     |
| 28    | GBNK0   | In  | 58    | GRMRC1  |     |
| 29    | GRPDN0  | Out | 59    | GRMWC1  |     |
| 30    | GND     | --  | 60    | GPCLK0  | In  |

**P11 Kanji ROM**  
Motherboard (19, 23, 26)

| Pin # | Signals | I/O | Pin #  | Signals | I/O    | Pin #  | Signals | I/O    |
|-------|---------|-----|--------|---------|--------|--------|---------|--------|
| 1     | +5V     | --  | 31     | GND     | --     | 61     | KRCOB0  | Out    |
| 2     | GND     | --  | 32     | KRCLD1  | Out    | 62     | KRCEE0  |        |
| 3     | KDPN01  | Out | 33     | KRRAC1  |        | 63     | KRCOE0  |        |
| 4     | KDPN11  |     | 34     | GND     | --     | 64     | GND     | --     |
| 5     | KDPN21  |     | 35     | --      | --     | 65     | KREG01  | Out    |
| 6     | KDPN31  |     | 36     | KALCR0  | In     | 66     | KREG11  |        |
| 7     | KDPN41  |     | 37     | KFULR0  | Out    | 67     | KREG21  |        |
| 8     | KDPN51  |     | 38     | --      | --     | 68     | KNGDN0  | --     |
| 9     | KDPN61  |     | 39     | GND     | --     | 69     | GND     |        |
| 10    | KDPN71  |     | 40     | KLCN01  | In     | 70     |         |        |
| 11    | GND     | 41  | KLCN11 | 71      |        | KCOD01 | In      |        |
| 12    | --      | 42  | KLCN21 | 72      |        | KCOD11 |         |        |
| 13    |         | 43  | KLCN31 | 73      | KCOD21 |        |         |        |
| 14    |         | 44  | KLCN41 | Out     | 74     | KCOD31 |         |        |
| 15    | --      | 45  | +5V    | --      | 75     | KCOD41 |         |        |
| 16    |         | GND | 46     | GND     | --     | 76     | KCOD51  |        |
| 17    |         | --  | 47     |         | Out    | 77     | KCOD61  |        |
| 18    |         |     | 48     | KDB081  |        | 78     | KCOD71  | --     |
| 19    |         |     | 49     | KDB091  |        | 79     | GND     |        |
| 20    | --      | 50  | KDB101 | 80      |        | KRAEL0 | Out     |        |
| 21    |         | GND | 51     | KDB111  |        | 81     |         | KRAOL0 |
| 22    |         | --  | 52     | KDB121  | 82     | KJMRC1 |         |        |
| 23    | KRDSP1  | Out | 53     | KDB131  | 83     | KJMW1  | --      |        |
| 24    | --      | --  | 54     | KDB141  | 84     | GND    |         |        |
| 25    | GND     | --  | 55     | KDB151  | 85     |        |         |        |
| 26    | KRWBE0  | Out | 56     | GND     | --     |        |         | 86     |
| 27    | KRRBE1  |     | 57     | KIOR00  | Out    |        |         | 87     |
| 28    | KBHE11  |     | 58     | KIOW00  |        | 88     |         |        |
| 29    | KRBCK1  |     | 59     | GND     | --     | 89     |         |        |
| 30    | KKACM1  |     | 60     | KRCEB0  | Out    | 90     |         |        |