

ZX81 list of IO ports

Take note:

Most addresses are only partly decoded and hardware will respond to additional addresses (mirrored addresses) as Sinclair did use only one address decoding bit which was just set to 0 (low) and many other followed this way

ZX80/ZX81 I/O Map

I/O Ports

xx0Fh.W	PSG data (Bi-Pak ZON-X81 Sound)
xx1Dh.R	Zebra Joystick adapter
xx2Fh.R	Memopak I/F Centronics Interface status (IN status,[dd3Fh]);dd=data
xx3Fh.R	Memopak I/F Centronics Interface finish (IN dummy,[dd3Fh]) ;dd=data
FF7Eh.R	Lambda - read PAL/NTSC flag (A7=row) (via diode from A7 to KEYB.0)
xx9Fh.W	PSG index (Timedata ZX81 Sound Box)
xxBFh.R	PSG data (Timedata ZX81 Sound Box/Joystick Read)
xxDFh.W	PSG index (Bi-Pak ZON-X81 Sound) (default address) (sometimes CFh)
xxDFh.W	PSG data (Timedata ZX81 Sound Box)
xxDFh.R	Mikro-Gen digital joystick
xxDFh.R	AGB - JOYSTICK II (port A) (or B ?)
xxEFh.R	AGB - JOYSTICK II (port B) (or A ?)
xxF5h.R	Lambda - toggle sound output level
xxF5h.W	Lambda - select charset line number (00..07)
xxF6h.R	Lambda - read selected charset data (8 pixels)
xxF6h.W	Lambda - select charset char number (00..3F)
xxFBh.R	Sinclair Printer Status
	xxxxx0xx (decoding scheme, A2 only used)
xxFBh.W	Sinclair Printer Output
	xxxxxx0x (decoding scheme, A2 only used)
xxFDh.W	Disable NMI (ZX81 only)
	xxxxxx0x (decoding scheme, A1 only used)
xxFEh.W	Enable NMI (ZX81 only)
	xxxxxx0 (decoding scheme, A0 only used)
NNFEh.R	Keyboard read, when NMI=Off: also enter VSYNC and set CAS.OUT=Low
	xxxxxx0 (decoding scheme, A0 only used)
xxFFh.W	Terminate Vsync and restart LINECNTR and set CAS.OUT=High
	xxxxxxx (every out performs this action)

Accidentally Used I/O Port Mirrors

0Eh.R	Faulty mirror of FEh.R (used by a GRAND-PRIX game)
CFh.W	PSG index (Bi-Pak ZON-X81 Sound) (used accidentally in Bi-Pak manual)
CFh.W	PSG index (Bi-Pak ZON-X81 Sound) (used by Lunar 10)
FEh.W	Faulty mirror of FFh.W (used by animated Space Invaders for ZX80)

0/1=decoded

x=not decoded

*=used for function / multiple io addresses

Specific systems and modules

ZXpand (storage interface, Charles Robson, EightyBits)

	00000111 (decoding scheme A7-A0 used)
xx07h.RW	config port
Remarks:	full decoded in hardware, no change possible

MMC-IF (storage interface MMC, ZX Team Germany)

	000*1111 (decoding scheme A7-A5,A3-A0 used, ** depends on function)
xx0Fh.W	card select latch
xx1Fh.RW	data
Remarks:	full decoded in hardware, no change possible

Mr.X/ZON-X (sound interface, ZX Team Germany)

	**0x111x (decoding scheme A5,A3,A2,A1 used, ** depends on function)
xx0Fh.W	AY write data (modified ZON-X)
xx1Fh.W	AY write data (original ZON-X)
xxCFh.W	AY write register (original ZON-X)
xxDFh.W	AY write register (additional combination)
Remarks:	io addresses 0Fh/1Fh and CFh/DFh are mirrored addresses
	base io address can be changed through different programming of GAL

Mr.X-2 (sound interface used for 6 channel sound, second card, ZX Team Germany)

	**0x011x (decoding scheme A5,A3,A2,A1 used, ** depends on function)
xx07h.W	AY write data (modified ZON-X)
xx17h.W	AY write data (original ZON-X)
xxC7h.W	AY write register (original ZON-X)
xxD7h.W	AY write register (additional combination)
second io	address set used when two Mr.X or Mr.X and ZXpand-AY used together for
6 channel	sound (with changed GAL)

ZeddyNet (network interface, ZX Team Germany)
001**111 (decoding scheme A7,A6,A5,A2,A1,A0 used, ** depends on function)
xx27h.W ZeddyNet write MODE register
xx2Fh.W ZeddyNet write AdrLow register
xx37h.W ZeddyNet write AdrHigh register
xx3Fh.RW ZeddyNet read/write data
Remarks: base io address can be changed through different programming of GAL

MEFISDOS (storage interface, ZX Team Germany)
01x**111 (decoding scheme A7,A6,A2-A0 used, ** depends on function)
xx47h.RW data
xx7Fh.W bank switch latch
Remarks: full decoded in hardware, no change possible

ZX81NU (ZX81 clone, ZX Team Germany)
*x*xxxx* (decoding scheme A7,A5,A0 used, ** depends on function)
xx5Eh.W IOextra
xx5Fh.RW IOclk/latch (SPI/USB Vdrive interface, banking latch)
Remarks: only partly decoded in hardware, no change possible

VDRIVE (storage interface, ZX Team Germany)
0111xxxx (decoding scheme A7-A4 used)
xx7Fh.R USB read/write (write with IN only)
Remarks: partly decoded in hardware, no change possible

HARDDISK-IF (storage interface, ZX Team Germany)
1011*xxx (decoding scheme A7-A4 used, ** depends on function)
xxB7h.RW function ?
xxBFh.RW function ?
Remarks: decoded in hardware, no change possible

Z80-PIO (PIO interface, ZX Team Germany)
110**111 (decoding scheme A7,A6,A5,A2,A1,A0 used, ** depends on function)
xxC7h.RW Port A data
xxCFh.RW Port B data
xxD7h.RW Port A control
xxDFh.RW Port B control
Remarks: base io address can be changed through jumper to:
A7/AF/B7/BF, 87/8F/97/9F, 67/6F/77/7F, 47/4F/57/5F, 27/2F/37/3F, 07/0F/17/1F

MULTI-IO (PIO and serial interface, ZX Team Germany)
11**111 (decoding scheme A7,A6,A2,A1,A0 used, ** depends on function)
xxC7h.RW Port A data
xxCFh.RW Port B data
xxD7h.RW Port A control
xxDFh.RW Port B control
xxEFh.RW function ?
xxF7h.RW function ?
Remarks: base io address can be changed through jumper to:
A7/AF/B7/BF, 87/8F/97/9F, 67/6F/77/7F, 47/4F/57/5F, 27/2F/37/3F, 07/0F/17/1F

CHROMA81 (colour interface, joystick support, RAM/ROM, www.fruitcake.plus.com)
11101111 (decoding scheme A7-A0 used, upper bits depend on function)
xxEFh.RW colour interface and RS232
Remarks: full decoded in hardware, no change possible,
uses \$FE port (keyboard port) for joystick read

ZXmore (ZX81 clone, ginger-electronic.com)
xxxx0x** (decoding scheme A3 only used, ** depends on function)
xxF4h.RW ZXmore miscellaneous functions internal
xxF5h.W ZXmore write ROM latch
xxF6h.W ZXmore write RAM latch
xxF7h.RW ZXmore read/write from/to USB
Remarks: base io address can be changed from F4-F7 with onboard jumper to
EC-EF (A4), DC-DF (A5), BC-BF (A6), 7C-7F (A7)

ZXblast (memory extension and USB flash disk interface, ginger-electronic.com)
xxxx0x** (decoding scheme A3 only used, ** depends on function)
xxF5h.R ZXblast write (!) RAM latch or active config register
xxF6h.R ZXblast write (!) ROM latch
xxF7h.RW ZXblast read/write from/to USB or RTC
xxFDh.R ZXblast change default register to RAM or some config register
Remarks: base io address can be changed from F5-F7 with onboard jumper to
ED-EF (A4), DD-DF (A5), BD-BF (A6), 7D-7F (A7)