

PDC20230-C

Code name: VG3, TurboChip C

Manufacturer: Promise Technology, Inc., in 1993 - 1994

Function: VESA Local Bus IDE controller

Features

- one fixed IDE channel
- speed settable by jumpers to 2, 4, 6
- ID3 pin sense - maybe?
- IORDY support ??

Used in: Promise DC2000C, DC2300 controllers, Octek VL-Combo and by various OEMs

Manufacturer support: none.

Documentation available: none.

Drivers available: DOS, Win 3.1x, Win 95, WinNT 3.1, Netware 386 3.1x, 4.01, OS/2 2.0, 2.1x, SCO Unix, AT&T UNIX System V/386

This chip is detected and set by Mr.BIOS.

This chip can be detected by following sequence:

```
outb (inb (0x1F2) | 0x80, 0x1F2);
inb (0x1F5);
cli ();
inb (0x1F2);
inb (0x3F6);
inb (0x3F6);
inb (0x1F2);
inb (0x1F2);
sti ();
if (inb (0x1F2) & 0x80)
    printf ("Chip is not PDC20230-C");
else
    printf ("Chip is PDC20230-C");
```

PDC20230-C clears highest bit of sector count register after this sequence.

This sequence switches PDC20230-C chip to programming mode. In programming mode, following registers have special meaning:

Register 1F2

bit 7

bit 6 - 1 causes both devices maximum speed

bit 5

bit 4

bit 3 - always 1

bit 2
bit 1
bit 0

Register 1F3 - speed settings

bit 7 - unknown, set to 1 for speed setting 7 of device 0 or 1.

bit 6 - VL bus clock, 0 means > 33 Mhz, 1 means <= 33 MHz ?? allowed only for device 0
speed 7

bit 3,4,5 - speed setting of device 0 (master), 0 to 7

bit 0,1,2 - speed setting of device 1 (slave), 0 to 7

	bit 6 = 1	@ 33 MHz	bit 6 = 0	@ 50 MHz	
Speed	Clocks	Cycle Time	Clocks	Cycle Time	
0	21	630	31	620	PIO 0
1	20	600	28	560	
2	17	510	26	520	
3	16	480	25	500	
4	13	390	20	400	PIO 1
5	12	360	19	380	
6	9	270	15	300	
7	8	240	12	240	PIO 2

After reset, lowest 3 bits of 1F3 registers contains speed setting set by jumpers (0, 2, 4, 6)

Writing new values ??? Is it really needed?

```
somedelay ();  
outb (inb (0x1F2) | 0x01, 0x1F2);  
somedelay ();  
inb (0x1F5);
```

The somedelay is 100 loops in assembler code.

Register 1F5 - close programming mode

Reading from register 1F5 closes programming mode.

DOS driver for PDC20230-C uses VLB sync sequence for 32-bit I/O, but it seems it works without it.

updated 21-May-2000 by [Petr Soucek](#)