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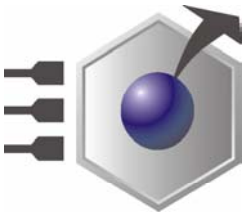

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VP2000 Reference Guide

Rev. 1.0

Mar. 2006

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Conventions

The following table lists conventions that are used throughout this guide.

Icon	Notice Type	Description
	Information note	Important features or instructions
	Warning	Information to alert you to potential damage to a program, system or device or potential personal injury

Environmental safety

When disposing the equipment, we suggest separating all of its components when possible, and disposing of them in accordance with local waste disposal legislations.
Be sure to dispose of used batteries as required by local waste disposal legislation. Never throw batteries into a fire (risk of explosion) or household garbage can.

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Chapter 1 Virtual Peripheral

Eurotech CPU Modules are designed for use as stand-alone mode, without keyboard, mouse, video or other I/O peripherals connected to it.

To simplify maintenance operations, you can quickly make I/O peripherals available by using the “Virtual Peripheral” mode: the Eurotech CPU Module inherits the I/O peripherals from another PC compatible computer (called Host computer) connected through serial or parallel cable. To make this possible, the “VP2000.exe” Eurotech DOS program must be running on the Host computer.

How “Virtual Peripheral” works

The “Virtual Peripheral” is a software solution implemented at BIOS level. BIOS service functions called to handle keyboard, video and floppy disk devices, are converted into messages forwarded to the host computer through the communication channel using a proprietary packet protocol.

When the Operating System or the user’s program deals with keyboard, video or floppy disk drive, it actually deals with host computer’s devices. There are no hardware traps to intercept accesses to these devices, so Virtual Peripheral works only if operating system and application programs use BIOS calls to work on them without directly accessing the relative I/O ports and memory areas.

Choosing the Virtual Peripheral connection type

There are two ways to perform a Virtual Peripheral connection: through a serial cable or through a parallel cable.

Serial Connection:

- Requires a RS232 RX/TX cable (with special wiring on CPU cable end).
- Connection is made at 112000 bits/sec.
- Connection works on any CPU serial port that is configured for RS232 mode.
- In case of bad configuration data, or if the invalid set-up is running, VP connection works only on the port that only supports RS232 (this avoids troubles if RS422/RS485 devices are connected).

The following illustration shows how to make a Serial VP cable connection:

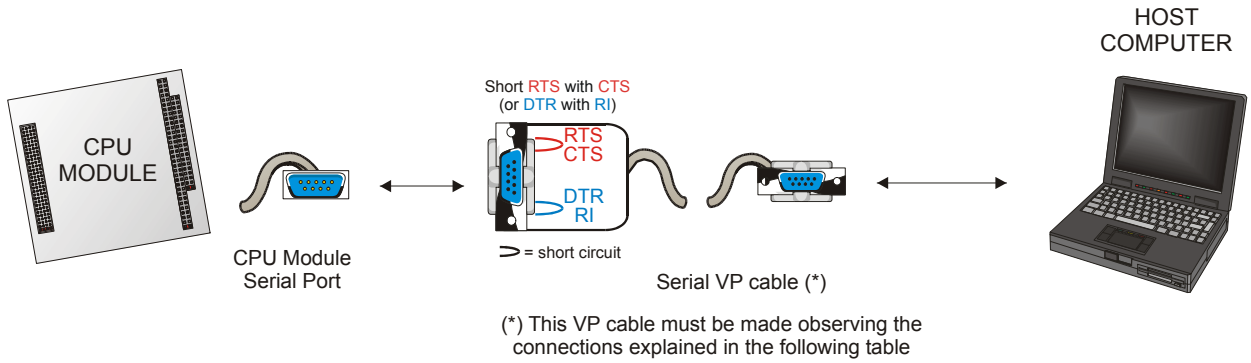

Table 1. Serial VP cable signals

Eurotech CPU Module						Host PC Serial Interface		
J8 Serial 1 Pin #	J8 Serial 2 Pin #	DB25 Pin #	DB9 Pin #	Signal	Function	Signal	DB25 Pin #	DB9 Pin #
25	34	3	2	RX	Receive Data	TX	2	3
27	36	2	3	TX	Transmit Data	RX	3	2
26	35	4	7	RTS				
28	37	5	8	CTS				
29	38	20	4	DTR				
30	39	22	9	RI				
31,40	31	7	5	GND	Signal Ground	GND	7	5

On Eurotech CPU Module side connect RTS to CTS or DTR to RI, These should not be connected to the host computer.

Signals not included in the previous table are not connected.

Parallel Connection:

- Requires a complete DCC Parallel Port cable.
- Requires a PC compatible computer with Parallel Port configured either as Bi-directional or as ECP.
- The theoretical transfer rate is: ISA Bus transfer rate / 6 (because 6 ISA Bus cycles are required for each transferred data byte).
- In case of bad configuration data, or if the invalid set-up is running, VP connection will not work.

The following table explains how the Parallel VP cable connections have to be made:

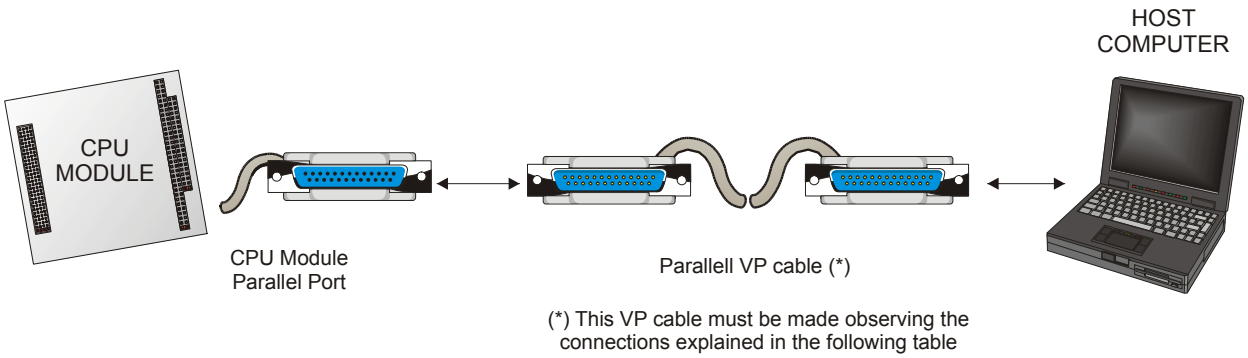

Table 2. Parallel Port VP cable signals

Eurotech CPU Module Parallel Port			Host Computer Parallel Port	
J8 PARALLEL pin #	**DB25 pin #**	**Signal**	**Signal**	**DB25 pin #**
1	1	STB#*	ACK#*	10
2	14	AFD#	BSY	11
3,5,7,9,11,13,15,17	2~9	PD#*	PD#*	2~9
6	16	INIT#*	PE	12
8	17	SLIN#*	SLCT	13
18	10	ACK#*	STB#*	1
19	11	BSY	AFD#	14
20	12	PE	INIT#*	16
21	13	SLCT	SLIN#*	17
10,12,14,16,31,40	18~25	GND	GND	18~25

Pins not included in the table above are not connected

The VP2000.EXE program

The VP2000 can be downloaded from the Eurotech website (www.eurotech.it) and is located in the download area in the tools/utility section.

The program only works in the DOS operating environment (it functions better without any keyboard or memory management device drivers loaded).

Select the following options based on which Host computer devices you want to redirect and which port, serial or parallel you will be using.

Execute the command:

VP2000 /TYPE=N [/v] [/k] [/d] [/c] [/a]

Option	Function
/TYPE	/COM: Use serial port cable /LPT: Use Parallel port cable
N	When using /COM 1: Use Serial port at 3F8h (no IRQ) 2: Use Serial port at 2F8h (no IRQ) 3: Use Serial port at 3E8h (no IRQ) 4: Use Serial port at 2E8h (no IRQ) When using /LPT 1: Use Parallel port at 378h (no IRQ) 2: Use Parallel port at 278h (no IRQ) 3: Use Parallel port at 3BCh (no IRQ)
/v	Re-direct Video
/k	Re-direct Keyboard
/d	Re-direct Floppy disc A
/c	Re-direct Console (Video & Keyboard)
/a	Re-direct All (Video + Keyboard + Floppy Disk A:)

How to perform a Virtual Peripheral session

To perform a Virtual Peripheral session you need:

- A free Serial Port configured as RS232 on the CPU module.
- If invalid configuration or the invalid set-up jumper is installed, you must use only one of the Serial Ports that are RS232 fixed (not RS232/422/485 selectable).
- If you choose the Parallel Connection you must not configure the CPU's Parallel Port as Floppy Disk.
- The appropriate Serial or Parallel VP cable.
- A PC compatible computer to be used as host. This computer must have a free RS232 Serial Port or a free Parallel Port configured as "Bi-directional" or "ECP" (use host computer BIOS Setup program to check or change the Parallel Port configuration).
- The Host Computer must be running DOS Operating System. If not available on its hard disk, you must create a DOS floppy disk and then boot from it. Do not put any memory manager or keyboard driver on that floppy.
- The Eurotech VP2000 program. Save it on the hard disk or on the just created floppy disk.

Follow these steps to perform a Virtual Peripheral session:

- Make sure the CPU Module and the host computer are switched off.
- Connect the CPU Module and the host computer together using the VP cable.
- Turn the host computer on and boot DOS.
- At the DOS prompt start the VP2000.exe program using the command line options as listed above in order to choose the Serial or Parallel Port you want to use and the peripherals you want to connect to the CPU.
- Turn on the CPU Module. Note that when you turn on the CPU Module, the VP2000 program must be already running on the host computer. If you start running the VP2000 program later, the Virtual Peripheral connection will not work.
- If you have chosen to redirect the Video, then CPU Module's video output will be redirected to host computer screen where you will see the CPU BIOS Banner and POST information.
- If you have chosen to redirect the Keyboard, then you must use the host computer's keyboard to enter set-up pressing 'F2' or to continue boot pressing 'F1'.
- If you have chosen to redirect the Floppy Disk, then CPU Module will see host computer Floppy Disk as its own Floppy Disk 'A:' If you have a diskette inserted into host computer drive, the CPU Module will try to boot from it!
- To exit VP2000 program press the 'Print-screen' key.
- You can hardware reset the CPU Module or recycle its power without exiting and restarting VP2000.

During a Virtual Peripheral session:

- **Do not press the 'Ctrl + Alt + Del' key combination on the host computer keyboard: the result will be a reboot of the host computer, not of CPU!**
- **Do not use the DOS "format" command under Virtual Peripheral mode: it will not work.**
- **Do not disconnect (and then reconnect) the communication cable: the hardware might be seriously damaged!**
- **Remember that Virtual Peripheral is only intended to be used for maintenance and upgrade operations: if you need a remote operative console, Virtual Peripheral is not a good solution.**