Windows CE 5.0 Development Kit for VIPER Single Board Computer

Quickstart Manual

Arcom
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Revision History

Manual	PCB	Date	Comments
Issue A		9th September 2003	First release.
Issue B		17th November 2003	Updated for CE 4.2 release.
Issue C		21st June 2004	Minor updates.
Issue D		11th August 2004	Minor edits, updated layout.
Issue E		21st September 2005	Updated for Windows CE 5.0 release.
Issue F		23rd November 2005	Minor updates.
Issue G		18th August 2006	Minor updates.
Issue H		7th December 2006	Minor updates.
Issue I		27th March 2007	Minor updates.
Issue J		16th October 2007	Minor updates.

Contents

Handling your board safely

Environmental

The VIPER Enclosure is fitted with the VIPER-UPS. The battery fitted to the VIPER-UPS is a 7-cell battery pack containing Varta V500 HRT NiMH (Nickel Metal Hydride) cells. These cells contain 0% lead, 0% mercury and 0% cadmium.

Anti-static handling

The Single Board Computer (SBC) and other circuit boards fitted inside the VIPER ICE contain CMOS devices. These could be damaged in the event of static electricity being discharged through them. At all times, please observe anti-static precautions when handling circuit boards. This includes storing boards in appropriate anti-static packaging and wearing a wrist strap when handling.

ElectroMagnetic Compatibility (EMC)

The VIPER is classified as a component with regard to the European Community EMC regulations and it is the users responsibility to ensure that systems using the board are compliant with the appropriate EMC standards.

Packaging

Please ensure that should a board need to be returned to Arcom, it is adequately packed, preferably in the original packing material.

About this manual

This manual will get you started using the VIPER with Windows CE 5.0. It lists the items you should find in your kit, and provides the information you need to get up and running.

Related documents

More detailed information can be found in the Documentation folder on the User CD, including:

- The VIPER board manual (PDF).
- The VIPER Windows CE technical manual (PDF).
- Information about other items included in the Development Kit.

Conventions

Symbols

The following symbols are used in this guide:

Symbol	Explanation
	Note - information that requires your attention.
	Tip - a handy hint that may provide a useful alternative or save time.
	Caution – proceeding with a course of action may damage your equipment or result in loss of data.

Terminology

The following terms are used throughout this manual:

Term	Definition
User CD	The Arcom VIPER Windows CE 5.0 Development Kit CD, supplied in the Development Kit.
VIPER CE Manual	The VIPER CE 5.0 Technical Manual, contained in the Documentation folder on the User CD.

Getting started

What's in the kit?

The VIPER Windows CE 5.0 Kit contains:

- Industrial Compact Enclosure (ICE) including:

    - VIPER-M64-F32.

    - UPS power supply.

    - Flat panel display 5.5" NEC.

    - Touchscreen / touchscreen controller.

- +24V @ 2.5A max (85-264 VAC input) power supply.

- US, UK or EURO power supply cable.

- Crossover RJ45 Ethernet cable.

- Null modem cable.

- User CD.

- Microsoft eMbedded Visual C++ 4.0 CD.

- Microsoft Platform Builder for Windows CE 5.0 (evaluation version).

Setting up and using VIPER Windows CE

This section guides you, step by step, through six tasks you need to carry out to set up and start using the VIPER Windows CE operating system.

Task 1: Powering up the VIPER board
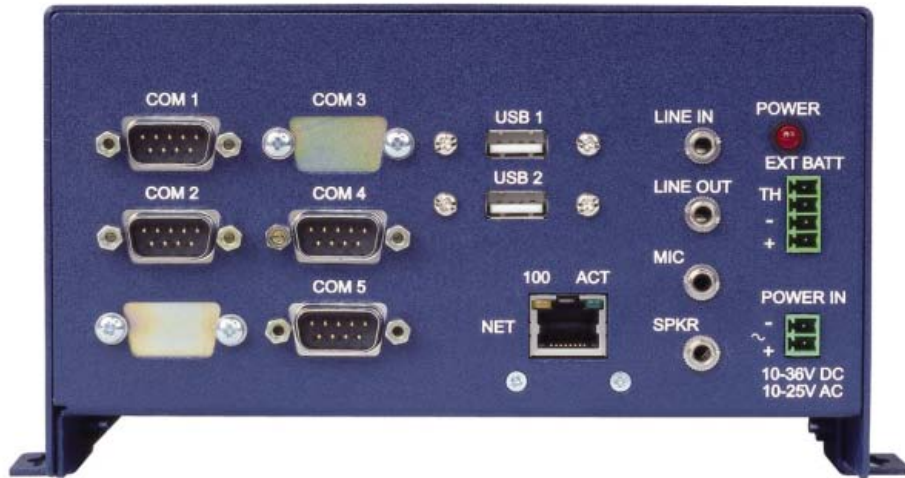
1   Remove the VIPER ICE enclosure from the Development Kit box, and place it on a flat surface. If it shows any signs of damage during transit please contact Arcom before proceeding. See Appendix A – Contacting Arcom, page 18.

2   Fit the VIPER power supply interface cable to the socket on the enclosure and to the power supply adapter.

3   Fit the US, UK or Euro power supply cable (as appropriate).

4   Power up the unit.

The screen will display a red Arcom logo while the system boots up. This takes approximately 20 seconds.

When complete, a 'Windows CE' desktop is displayed.

Task 2: Using the touchscreen interface to save the registry

The touchscreen is set up and calibrated during the Development Kit production process. For information about re-calibrating the touchscreen see the *Using Touchscreens with the VIPER* section on the User CD.

This task demonstrates how to use the SaveReg utility to save any changes made to the registry. Follow these steps:

1   Power up the board as described in .

2   Touch the **Start** button, then go to **Settings**.

3   Touch the **Control Panel** button.

4   Double-tap on the **Display** icon.

5   Using the blue bar at the top, drag the **Display Properties** window to the left until Tile Image on Background checkbox is visible.

6   Check the **Tile image on background** box.

7   Tap the **OK** box.

8   Shut down the **Control Panel** by tapping the **X** in the top right corner of the window. The 'Windows CE' logo is tiled on the screen.

The change has not yet been saved. If you reboot the board now, a single 'Windows CE' logo would reappear. The registry must be saved to keep these settings, as described below.

9   Double-tap the **My Device** icon in the desktop window.

10   Double-tap the **Flashdisk** folder, then the **Arcom** folder.

11   Double-tap the **savereg.exe** file. A command window opens showing the following message:
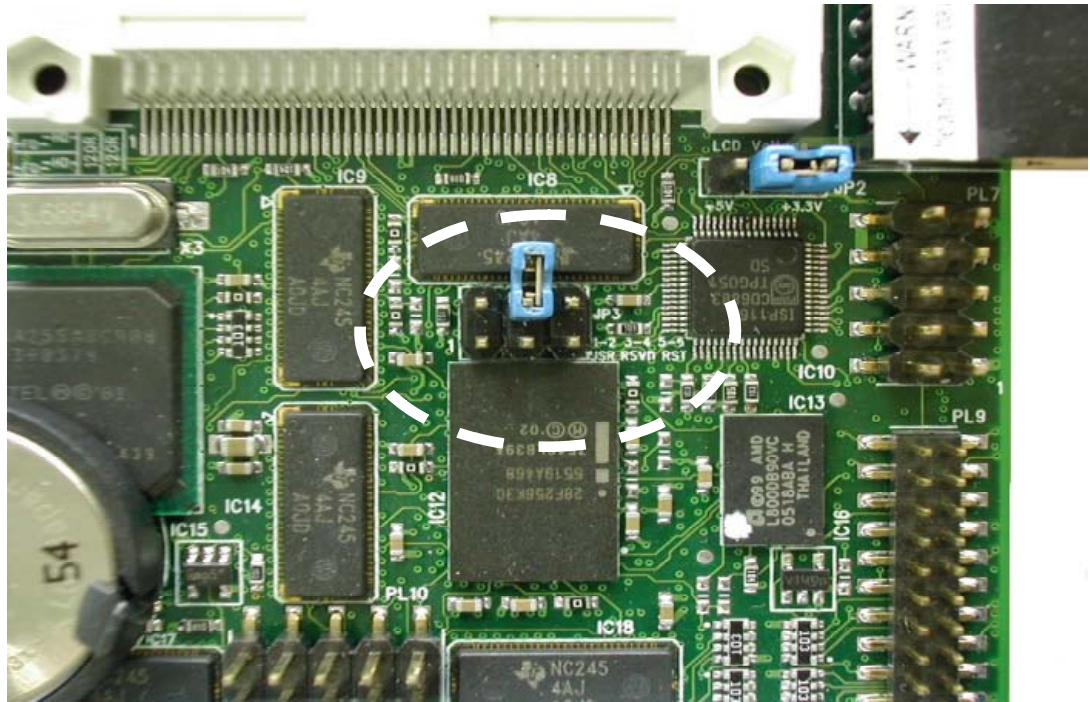
```
Saving the registry
Please wait
```

After a short time the following message is shown:

```
Registry saved
```

The command window then closes.

12 Check that the registry link is not connected so that the Registry is retained, as shown in the following photograph:

13 Reboot the VIPER board. When the system restarts, the backdrop will have changed to a tiled 'WindowsCE' logo.

> Windows CE 5.0 can only be rebooted by power cycling the board, or by pressing the **Reset** button on the VIPER ICE.
>
> Further information about the registry can be found in the *Registry* section of the VIPER CE Manual.

Task 3: Using a remote VNC connection

VNC stands for Virtual Network Computing. It is remote control technology that allows you to view and interact with one computer (the 'server') using a simple program (the 'viewer') running on another computer anywhere on the Internet.

The following task demonstrates how to control the VIPER Windows CE 5.0 system from a host computer using a remote VNC connection. Follow these steps:

1   If you have not already done so, install the VNC viewer on a desktop computer. A copy of the viewer is available in the section *Using VNC with the VIPER* on the User CD.

2   From the start menu on the desktop system, open TightVNC and run TightVNC Viewer (Listen Mode).

The VNC icon, [icon], appears in the system tray

3   Right click on the [icon] icon and click on *Default Connection Options*. The *Connection Options* dialog box displayed. In the *Preferred encoding* section, check *Raw* instead of *Tight* and click on **OK**.

4   Right click on the [icon] icon again and select *New Connection*. The following dialog box is displayed:
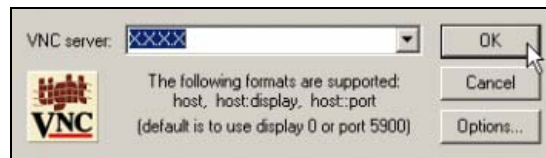
Enter the VIPER's IP address in the *VNC server* box and click on **OK**.

The VIPER's IP address can be obtained by double-tapping the [icon] icon in the system tray of the VIPER Windows CE system.

When connection is established, a window is displayed on the desktop computer showing the same screen as the VIPER Windows CE system:

5   When the desktop computer's mouse is in this window it changes to a square dot, and the mouse of the VIPER Windows CE system follows it. The computer's keyboard can now be used to type commands on the VIPER Windows CE system.

> The server for VNC, vncsrv.exe, is loaded into the \Flashdisk\Arcom folder. There is also an entry in the startup.ini file, which launches it automatically when the VIPER board boots.

Task 4: Establishing serial connection to a host system using ActiveSync

This task explains how to connect to the VIPER Windows CE 5.0 system from a host computer and establish a partnership. This must be carried out before an Ethernet connection can be established.

Microsoft ActiveSync 3.6 or later is needed for this task.

To connect the VIPER Windows CE 5.0 to a host computer:

1   Connect the null modem cable supplied between the designated COM port on the host system and the header labeled 'COM1' on the VIPER Windows CE system.

2   Install the ActiveSync software on your host system, if it has not already been installed. A link to the ActiveSync Web Site is available under the *Microsoft Tools* section on the User CD.

3   Select **Get connected…** from the **File** pull-down menu in ActiveSync. The **Get Connected** screen is displayed.

4   In the VIPER Windows CE system, click on **Start** and then **Run…**. The **Open** dialog displayed. Type **repllog** and click on **OK**.

5   In the host system, click on **Next** in the **Get Connected** window:

The order of steps 4 and 5 is crucial. The **Next** button in the above dialog should only be clicked after typing **repllog** and clicking on **OK** in the VIPER Windows CE system.

When connection is successfully established, the 'ActiveSync' icon on the host system taskbar turns green and the **New Partnership** dialog is displayed:

It may take several attempts to get the first connection established. If a connection cannot be made we recommend taking the following steps:

1　　Check that the serial cable is connected correctly between the correct port on the host system and COM1 of the VIPER Windows CE system.

2　　Repeat steps 4 and 5 on the previous page.

To establish a partnership between the host system and the VIPER Windows CE system:

1　　In the **New Partnership** dialog, select **Yes** and click on **OK**. You are prompted to choose the information you want to synchronize:
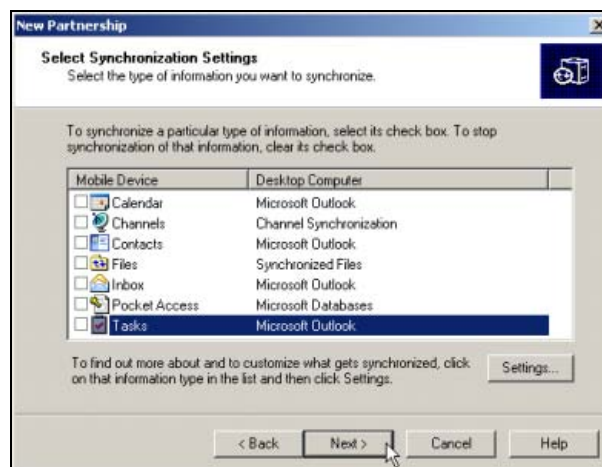
2   Make sure that none of the boxes are checked, and click on **Next**:

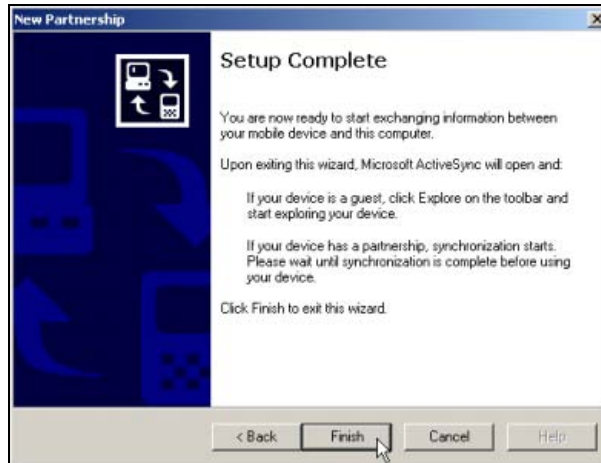The following dialog is displayed informing you that the setup process is now complete:

3   Click on **Finish** to complete the process.

Microsoft ActiveSync launches and the VIPER Windows CE system synchronizes with the host system:
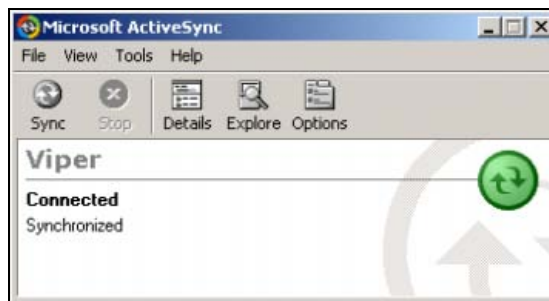
> After a partnership has been established, the registry on the VIPER Windows CE system must be saved as described in Task 2: Using the touchscreen interface to save the registry on page 8.

4   Open Windows Explorer on the host system, and select the Mobile Device icon under My Computer, there you will see all the files on the VIPER Windows CE system.

The connection can be disconnected at any time by double-clicking on the [icon] icon in the taskbar of the VIPER Windows CE system and selecting **Disconnect**.

Task 5: Establishing an Ethernet connection to a host system using ActiveSync 3.8

This task explains how to communicate with a host computer using an Ethernet connection. This involves checking that the system has valid IP Information and then establishing a connection.

This task required ActiveSync 3.8 (supplied on the User CD). Later versions of ActiveSync do not support Ethernet connectivity.

Before starting this task, a partnership with the host system must have been established using a serial connection and then disconnected, as described in the previous task. If the board is not connected to a network that has a DHCP server running, a static IP address must be set up before you attempt to establish an Ethernet connection. For information about setting up a static IP address see the Ethernet section of the VIPER CE manual, which is on the User CD.

To check that the system has valid IP Information:

1 Disconnect the serial cable used to establish a serial ActiveSync connection in the previous task.

2 Click on **Start** and then **Run…**. In the **Open** dialog displayed, type **cmd** and click on **OK**.

3 At the command prompt, type **ipconfig**.

4 Check the Ethernet adapter section for the IP Address, Subnet Mask and any other IP parameters set up.

To establish a connection:

1 At the command prompt, type **start repllog /remote**. The **ActiveSync** dialog is displayed:

2   Select **Network Connection** and choose the name of the host system.

> Windows CE is quite particular about the characters used in host names. They must begin with a letter, and they can only contain letters, numbers and '_' (underscore). Names which contain '–' (minus), which is often inserted into filenames by Windows XP automatically, will not work correctly.

3   Click on **Connect…**:

The **Connecting to Desktop** dialog is then displayed, for up to 30 seconds.

When connection is established, the **Connecting to Desktop** dialog is replaced by the **Connection Status** dialog.

> Clicking the **Disconnect** button disconnects the ActiveSync connection.
>
> Clicking the **ActiveSync** button in the taskbar hides the **Connection Status** dialog.
>
> The **Sync Now** button is not applicable to the configuration you are setting up.

Task 6: Copying files using ActiveSync

This task shows how files can be copied between the desktop computer and the VIPER Windows CE system. Follow these steps:

1   Establish communication between the Windows CE 5.0 system and the host system using either of the methods described in Task 4: Establishing serial connection to a host system using ActiveSync, page 12, and Task 5: Establishing an Ethernet connection to a host system using ActiveSync, page 15.

2   Insert the User CD into the desktop computer's CD-ROM drive.

3   Browse to the **\DEMOS** folder using the host system's Windows Explorer.

4   Copy **etcha.exe** from this folder to the **\FlashDisk\User** folder on the VIPER Windows CE system.

If the **No Converter Selected** dialog is displayed, click **OK** to proceed.

---

5   On the VIPER Windows CE system, double-tap the **My Computer** icon in the desktop window.

6   Double-tap the **Flashdisk** folder, then the **User** folder.

7   Check that the **etcha.exe** file has been copied into this folder, and double tap on it to run the application.

8   Draw on the screen to test the application.

Appendix A – Contacting Arcom

Arcom sales

Arcom's sales team is always available to assist you in choosing the board that best meets your requirements.

Arcom
7500W 161st Street
Overland Park
Kansas
66085
USA

Tel: 913 549 1000

Fax: 913 549 1002

E-mail: us-sales@arcom.com

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Fax: 913 549 1001

E-mail: us-support@arcom.com

Eurotech Group

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The Windows CE operating system has been configured to run on the Arcom VIPER processor board. A copy of the operating system image is included on the Development Kit CD, and may be used to restore the operating system on the VIPER board. The operating system image on the Development Kit CD may also be used to produce production copies of the supplied operating system. The Windows CE operating system may be used in your product using one of the following license options:

- Arcom can supply VIPER boards with the Windows CE operating system installed onto the local flash drive. These would be ordered as a single line item using a unique part number. A minimum order quantity will apply to this option. Please contact Arcom for information about order numbers and costs.

If you intend to use the Windows CE operating system image supplied by Arcom and purchase the Windows CE licenses directly from your local Microsoft distributor, you must sign an OEM Customer License Agreement (supplied by your Microsoft distributor). You are responsible for installing the operating system onto the Arcom product and maintaining compliance with the terms of the OEM license.

If you build your own nk.bin image using Platform Builder, you must sign an OEM customer License Agreement (supplied by your Microsoft distributor) .

You can install your Windows CE image using the following options

- Purchase the license labels from your Microsoft distributor and install the operating system yourself.

- Sign a Third Party Installer Agreement with Microsoft. You can then buy the license labels from your distributor and nominate Arcom to install the operating system image. Arcom may charge a fee for installing and testing the Windows CE image.

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Attachment A

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Si vous avez acquis votre produit Microsoft au CANADA, la garantie limitée suivante s'applique :

DÉNI DE GARANTIES. DANS LA MESURE MAXIMALE PERMISE PAR LES LOIS APPLICABLES, LE LOGICIEL ET LES SERVICES DE SOUTIEN TECHNIQUE (LE CAS ÉCHÉANT) SONT FOURNIS TELS QUELS ET AVEC TOUS LES DÉFAUTS PAR MICROSOFT ET SES FOURNISSEURS, LESQUELS PAR LES PRÉSENTES DÉNIENT TOUTES AUTRES GARANTIES ET CONDITIONS EXPRESSES, IMPLICITES OU EN VERTU DE LA LOI, NOTAMMENT, MAIS SANS LIMITATION, (LE CAS ÉCHÉANT) LES GARANTIES, DEVOIRS OU CONDITIONS IMPLICITES DE QUALITÉ MARCHANDE, D'ADAPTATION À UNE FIN PARTICULIÈRE, DE FIABILITÉ OU DE DISPONIBILITÉ, D'EXACTITUDE OU D'EXHAUSTIVITÉ DES RÉPONSES, DES RÉSULTATS, DES EFFORTS DÉPLOYÉS SELON LES RÈGLES DE L'ART, D'ABSENCE DE VIRUS ET D'ABSENCE DE NÉGLIGENCE, LE TOUT À L'ÉGARD DU LOGICIEL ET DE LA PRESTATION OU DE L'OMISSION DE LA PRESTATION DES SERVICES DE SOUTIEN TECHNIQUE OU À L'ÉGARD DE LA FOURNITURE OU DE L'OMISSION DE LA FOURNITURE DE TOUS AUTRES SERVICES, RENSEIGNEMENTS, LOGICIELS, ET CONTENU QUI S'Y RAPPORTE GRÂCE AU LOGICIEL OU PROVENANT AUTREMENT DE L'UTILISATION DU LOGICIEL . PAR AILLEURS, IL N'Y A AUCUNE GARANTIE OU CONDITION QUANT AU TITRE DE PROPRIÉTÉ, À LA JOUISSANCE OU LA POSSESSION PAISIBLE, À LA CONCORDANCE À UNE DESCRIPTION NI QUANT À UNE ABSENCE DE CONTREFAÇON CONCERNANT LE LOGICIEL.

EXCLUSION DES DOMMAGES ACCESSOIRES, INDIRECTS ET DE CERTAINS AUTRES DOMMAGES. DANS LA MESURE MAXIMALE PERMISE PAR LES LOIS APPLICABLES, EN AUCUN CAS MICROSOFT OU SES FOURNISSEURS NE SERONT RESPONSABLES DES DOMMAGES SPÉCIAUX, CONSÉCUTIFS, ACCESSOIRES OU INDIRECTS DE QUELQUE NATURE QUE CE SOIT (NOTAMMENT, LES DOMMAGES À L'ÉGARD DU MANQUE À GAGNER OU DE LA DIVULGATION DE RENSEIGNEMENTS CONFIDENTIELS OU AUTRES, DE LA PERTE D'EXPLOITATION, DE BLESSURES CORPORELLES, DE LA VIOLATION DE LA VIE PRIVÉE, DE L'OMISSION DE REMPLIR TOUT DEVOIR, Y COMPRIS D'AGIR DE BONNE FOI OU D'EXERCER UN SOIN RAISONNABLE, DE LA NÉGLIGENCE ET DE TOUTE AUTRE PERTE PÉCUNIAIRE OU AUTRE PERTE DE QUELQUE NATURE QUE CE SOIT) SE RAPPORTANT DE QUELQUE MANIÈRE QUE CE SOIT À L'UTILISATION DU LOGICIEL OU À L'INCAPACITÉ DE S'EN SERVIR, À LA PRESTATION OU À L'OMISSION DE LA PRESTATION DE SERVICES DE SOUTIEN TECHNIQUE OU À LA FOURNITURE OU À L'OMISSION DE LA FOURNITURE DE TOUS AUTRES SERVICES, RENSEIGNEMENTS, LOGICIELS, ET CONTENU QUI S'Y RAPPORTE GRÂCE AU LOGICIEL OU PROVENANT AUTREMENT DE L'UTILISATION DU LOGICIEL OU AUTREMENT AUX TERMES DE TOUTE DISPOSITION DE LA PRÉSENTE CONVENTION OU RELATIVEMENT À UNE TELLE DISPOSITION, MÊME EN CAS DE FAUTE, DE DÉLIT CIVIL (Y COMPRIS LA NÉGLIGENCE), DE RESPONSABILITÉ STRICTE, DE VIOLATION DE CONTRAT OU DE VIOLATION DE GARANTIE DE MICROSOFT OU DE TOUT FOURNISSEUR ET MÊME SI MICROSOFT OU TOUT FOURNISSEUR A ÉTÉ AVISÉ DE LA POSSIBILITÉ DE TELS DOMMAGES.

LIMITATION DE RESPONSABILITÉ ET RECOURS. MALGRÉ LES DOMMAGES QUE VOUS PUISSIEZ SUBIR POUR QUELQUE MOTIF QUE CE SOIT (NOTAMMENT, MAIS SANS LIMITATION, TOUS LES DOMMAGES SUSMENTIONNÉS ET TOUS LES DOMMAGES DIRECTS OU GÉNÉRAUX OU AUTRES), LA SEULE RESPONSABILITÉ DE MICROSOFT ET DE L'UN OU L'AUTRE DE SES FOURNISSEURS AUX TERMES DE TOUTE DISPOSITION DE LA PRÉSENTE CONVENTION ET VOTRE RECOURS EXCLUSIF À L'ÉGARD DE TOUT CE QUI PRÉCÈDE SE LIMITE AU PLUS ÉLEVÉ ENTRE LES MONTANTS SUIVANTS : LE MONTANT QUE VOUS AVEZ RÉELLEMENT PAYÉ POUR LE LOGICIEL OU 5,00 $US. LES LIMITES, EXCLUSIONS ET DÉNIS QUI PRÉCÈDENT (Y COMPRIS LES CLAUSES CI-

DESSUS), S'APPLIQUENT DANS LA MESURE MAXIMALE PERMISE PAR LES LOIS APPLICABLES, MÊME SI TOUT RECOURS N'ATTEINT PAS SON BUT ESSENTIEL.

À moins que cela ne soit prohibé par le droit local applicable, la présente Convention est régie par les lois de la province d'Ontario, Canada. Vous consentez à la compétence des tribunaux fédéraux et provinciaux siégeant à Toronto, dans la province d'Ontario.

Au cas où vous auriez des questions concernant cette licence ou que vous désiriez vous mettre en rapport avec Microsoft pour quelque raison que ce soit, veuillez utiliser l'information contenue dans le Logiciel pour contacter la filiale de Microsoft desservant votre pays, ou visitez Microsoft sur le World Wide Web à www.microsoft.com.

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