

# Kontron<sup>®</sup> Windows CE Solution Pack

## Technical Manual

### Rev. 2.4

**Kontron<sup>®</sup>**  
Embedded Modules GmbH  
Brunnwiesenstraße 16  
94469 Deggendorf/ Germany

PN of Manual:	JWinCE.doc
Manual Rev.:	2.4
File:	JWinCE.doc

---

## Table of Contents

---

<b>TABLE OF CONTENTS</b>	<b>2</b>
<b>USER INFORMATION</b>	<b>4</b>
Trademarks	4
General	4
Warranty	5
<b>INTRODUCTION</b>	<b>6</b>
IDE Driver	7
Bootloader	7
Memory Handler	7
Video Drivers	8
Ethernet Driver	8
Audio Driver	9
JIDA32 Library API	9
JStart Flash/Hard Disk Application Launcher	9
Registry Persistence	10
Ethernet Download and Kernel Debugging	10
<b>WHAT'S NEW</b>	<b>11</b>
<b>REQUIREMENTS</b>	<b>13</b>
<b>INSTALLATION</b>	<b>13</b>
Windows CE 5.0	13
Bootloader and LOADCEPC	14
<b>BOOTABLE WINDOWS CE CONFIGURATION</b>	<b>15</b>
<b>WINDOWS CE IMAGE CONFIGURATION</b>	<b>17</b>
Visual Platform Builder Components	17

<b>Important Notes</b>	<b>18</b>
<b>Hardware Notes</b>	<b>19</b>
<b>Including Additional Components</b>	<b>20</b>
<b>Configuration Options</b>	<b>21</b>
<b>HINTS</b>	<b>23</b>
<b>DOCUMENT REVISION HISTORY</b>	<b>24</b>

---

## User Information

---

Copyright 2006 Kontron<sup>®</sup> Embedded Modules GmbH.

In this document Kontron<sup>®</sup> Embedded Modules GmbH will also be referred to by the short form "Kontron<sup>®</sup>".

The information in this document has been carefully checked and is believed to be accurate and reliable. However, no responsibility is assumed for inaccuracies. Furthermore, Kontron<sup>®</sup> reserves the right to make changes to any portion of this manual to improve reliability, function or design. Kontron<sup>®</sup> does not assume any liability for any product or circuit described herein.

---

## Trademarks

---

AT and IBM are trademarks of International Business Machines

XT, AT, PS/2 and Personal System/2 are trademarks of International Business Machines Corporation.

Microsoft is a registered trademark of Microsoft Corporation.

Intel is a registered trademark of Intel Corporation.

All other products and trademarks mentioned in this manual are trademarks of their respective owners.

The reproduction, transmission or use of this document or its contents is not permitted without expressed written authority.

Offenders will be liable for damages. All rights created by patent grant or registration of a utility model or design, are reserved.

© Kontron<sup>®</sup> Embedded Modules GmbH 2006

---

## General

---

For the circuits, descriptions and tables indicated no responsibility is assumed as far as patents or other rights of third parties are concerned.

The information in the Technical Descriptions describes the type of the boards and shall not be considered as assured characteristics.

The reproduction, transmission or use of this document or its contents is not permitted without express written authority. Offenders will be liable for damages. All rights, including rights created by patent grant or registration of a utility model or design, are reserved.

## Warranty

Each board is tested carefully and thoroughly before being shipped. If, however, problems should occur during the operation, please check your user specific settings of all boards included in your system. This is often the source of the fault. If a board is defective, it can be sent to your supplier for repair. Please take care of the following steps:

1. The board returned should have the factory default settings since a test is only possible with these settings.
2. In order to repair your board as fast as possible we require some additional information from you. Please fill out the attached Repair Form and include it with the defective board.
3. If possible the board will be upgraded to the latest version without additional cost.
4. Upon receipt of the board please be aware that your user specific settings were changed during the test.

Within the warranty period the repair is free of charge as long as the warranty conditions are observed. Because of the high test expenditure you will be charged with the test cost if no fault is found. Repair after the warranty period will be charged.

This **Kontron<sup>®</sup>** product is warranted against defects in material and workmanship for the warranty period from the date of shipment. During the warranty period **Kontron<sup>®</sup>** will at its option either repair or replace defective products.

For warranty service or repair the product must be returned to a service facility designated by **Kontron<sup>®</sup>**.

The foregoing warranty shall not apply to defects resulting from improper or inadequate maintenance or handling by buyer, unauthorized modification or misuse, operation outside of the product's environmental specifications or improper installation or maintenance.

**Kontron<sup>®</sup>** will not be responsible for any defects or damages to other products not supplied by **Kontron<sup>®</sup>** that are caused by a faulty **Kontron<sup>®</sup>** product.

---

## Introduction

---

The **Kontron<sup>®</sup>** Windows CE Solution Pack is an add-on to the Windows CE Embedded Toolkit or Platform Builder. It contains essential components that you need to deliver your Windows CE based solution to your customers right away.

It allows you to immediately create a Windows CE 2.0, 2.11, 2.12, 3.0, 4.0, 4.1, 4.2, or 5.0 (.NET) operating system that runs on all current **Kontron<sup>®</sup>** CPU boards while utilizing the available PC-compatible hardware to the fullest.

This documentation covers Windows CE version 5.0. Please refer to older documentation for previous CE versions.

The current version of the Solution Pack includes:

- IDE Driver
- Bootloader
- Memory Handler
- Video Driver
- Serial Driver Configuration
- Ethernet Driver
- Audio Driver
- JIDA32 Library API
- JStart Flash/Hard Disk Application Launcher
- Registry Persistence
- Ethernet Download and Kernel Debugging

## IDE Driver

Allows read and write access to a maximum of four IDE-compatible hard and flash disk drives. The drives can contain a regular MS-DOS FAT file system. Without this driver Windows CE applications have no way of saving configuration or program data on a PC compatible platform. The root directory of the first hard disk will appear as "\Storage Card" in the root directory of the Windows CE file system and can be accessed with regular Win32 file API. Additional hard disk are numbered "\Storage Card2" and so on.

There are three choices for IDE drivers:

The "KontronPCI IDE/ATAPI" (atapi.dll) is the original MS driver. This does NOT work for most Kontron boards.

"Kontron ISA/Plain IDE" (jidedisk.dll) is the Kontron driver is small and fast IDE driver but does not support CD-ROMs. We recommend using this driver.

"Kontron Generic ATAPI" (jatapi.dll) should be used whenever CD-ROM support is required.

**NEVER** use "ATAPI PCI/IDE Storage Block Driver" (atapi.dll), "Promise Controller ATAPI driver" (atapi.dll), or "Compact Flash / PC Card Storage (ATADISK)"

**NEVER** mix IDE/ATAPI drivers. They all access the same hardware.

## Bootloader

Allows you to boot Windows CE directly from a BIOS (INT 13h) compatible hard or flash disk drive. Only the FAT 16 file system is supported. The loader can handle the NK.BIN file images that are generated by the Windows CE Embedded Toolkit. Without this loader you would need to boot MS-DOS prior to booting Windows CE and additional MS-DOS licenses would be required. Note that the IDE driver is not required for using the boot loader.

## Memory Handler

Allows you to utilize an additional 800 Kilobytes of memory under Windows CE that would otherwise be wasted. Includes support for more than 32 MB. The maximum memory that CE can support is 512 MB.

## Video Drivers

Adds support for the Cirrus Logic, CT, Topro, SMI, MGX, LX, Intel, and ATI Rage graphics controllers that are used on **Kontron<sup>®</sup>** boards. Supported resolutions include:

- 320\*200
- 640\*480 VGA
- 320\*240 Quarter VGA
- 800\*600 (most drivers)
- 1024\*768 (most drivers)
- 1280\*1024 (most drivers)
- Other resolutions on request (they may already be available, please ask)

Flat VGA Driver Support:

If you want to use the Flat VGA driver ddi\_flat then prepare the boot drive with

JSYSCE C: F640\*480

Please note that if you use LOADCEPC you MUST add the /L switch like this:

LOADCEPC /L:640x480x8

For ALL other video drivers NEVER add the /L switch. Setting the video mode with JSYSCE is sufficient in these cases. The Flat VGA driver can be used for all boards with a PCI graphics card and VESA support in the BIOS that do not have a dedicated display driver.

This is the case for VIA based boards like ETX-P3E and ETX-C3E.

To set 16 bit color modes add "\*\*16". Example: JSYSCE C: F800\*600\*16

Topro Display Driver:

For Topro based cards like the DIMM/PC-VGA2 include the ddi\_jump (Kontron Cirrus Logic Display Driver)

Then prepare the boot drive with

JSYSCE C: TP640\*480

LX800 Display Driver:

For LX based prepare the boot drive with MGX like:

JSYSCE C:MGX640\*480

---

## Ethernet Driver

Adds support for the Crystal, Intel, AMD, VIA, and Davicom Ethernet controller that are used on **Kontron<sup>®</sup>** boards.



## Audio Driver

---

Adds Audio support for the Geode and ESS Solo1 chips that are used on **Kontron<sup>®</sup>** boards.

In the BIOS Setup make sure that the Sound is enabled and set to IO Port 220, DMA 5, and IRQ 5. Be careful that MPU IO setting does not interfere with your debug NE2000 compatible Ethernet card.

## JIDA32 Library API

---

Most **Kontron<sup>®</sup>** PC boards are equipped with unique hardware features that cannot be accessed with standard API. The JIDA interface allows you to access these features in a hardware independent manner under any Win32 based and other operating systems.

The interface DLL works under any flavor of Win32. The DLL communicates with a platform dependent driver. At the present time drivers are available for Windows 9x, Windows NT/2000, Windows CE, Linux, and VxWorks.

The Windows CE drivers have been included in the Windows CE Solution Pack for your convenience. To use JIDA32 Library in your application you must download the JIDA32 Library driver and development pack available as a separate archive. Please refer to the JIDA32.DOC manual for further information.

## JStart Flash/Hard Disk Application Launcher

---

This component launches an application called "START.EXE" located in the root directory of the flash or hard disk. Under CE this location is mapped to the "Storage Card" folder. If the file is not present no action is taken. This requires the IDE driver.

A sample "START.EXE" is provided in the JCEPC\Tools directory.

Please note that this name is nationalized so the current version of JStart only works on the US version of CE or if the localized "Storage Card" string is set to "Storage Card" again.

## Registry Persistence

Registry Persistence provides support for saving and restoring the Windows CE registry on an external drive such as an IDE compatible flash disk.

To use the registry persistence feature make sure the drive has been processed with JSYSCE with the `-r` switch. Example:

```
JSYSCE C: ATI640*680 -r
```

This loads the registry from a CEREG.BIN file located in the directory of the CE boot drive. The registry restore/save feature is **not available when using LOADCEPC**.

To save the registry you must call the Standard Windows CE API function

```
RegFlushKey(HKEY_LOCAL_MACHINE);
```

You can also run the included FLUSHREG.EXE sample program.

The default volume folder name is "Storage Card". It can be changed by calling `KernelIoControl()` and passing `IOCTL_JHAL_SET_REGISTRY_VOLUME` and a Unicode string containing the new name. This also enables registry saves (not restores) when the image was loaded with LOADCEPC.

## Ethernet Download and Kernel Debugging

The preferred Ethernet Download and Kernel Debugging option is to use a dedicated NE2000 compatible Ethernet card (preferably ISA or PC/104).

However if this is not an option you can now use the on-board Ethernet. This package contains support for on-board Davicom 9102A and Intel 8255x(ER) Ethernet chips.

The Ethernet bootloader also includes support for NE2000 compatible ISA cards (like RTL8019, DM9008, FP9601) or RTL8139 PCI Ethernet card.

Copy the file EBOOT.BIN from the JCEPC\Tools directory your target's boot disk.

Launch with the Kontron Version of Loadcepc:

```
loadcepc /E:1:<io>:<irq> /B:38400 eboot.bin
```

Specify the correct values for <io> and <irq> for example:

```
loadcepc /E:1:1400:11 /B:38400 eboot.bin
```

To pick the first PCI Ethernet chip specify:

```
loadcepc /E:1:1:1 /B:38400 eboot.bin
```

---

## What's new

---

### **CESPI124:**

- Updated JATAPI
- Updated Intel Embedded Graphics Driver
- Updated Crystal Ethernet Driver
- Updated JIDA Driver
- Updated JInitGX (LX support)
- Updated ICH4 Audio Driver (ICH6 support)
- Added LX Video Driver
- Added LX Audio Driver
- Added JApMOff for power button support on Intel and Via boards.

### **CESPI123:**

- Added USB Legacy Support
- Updated JATAPI
- Updated Intel Ethernet Kernel Debugging
- Increased maximum memory to 512 MB, the top limit for CE

### **CESPI122:**

- Updated Intel Embedded Graphics Driver
- Added PCI Bus Master Driver

### **CESPI121:**

- Updated Boot Loader, JSYSCE & EBOOT.BIN
- Updated VIA Display Driver
- Updated Intel Ethernet Driver
- Updated JIDA Driver
- Updated JInitIP
- Updated VIA Ethernet
- Added SMI LynxEM+ Display Driver
- Added Intel Embedded Graphics Driver
- Added CMI Audio Driver
- Added ICH4 Audio Driver

### **In 2.1:**

- Support for Windows CE 5.0
- The BSP is now under Platform\JCEPC

### **In 2.0:**

- Support for Windows CE 4.2
- Added Ethernet Download and Kernel Debugging for Davicom and Intel Ethernet chips.
- Added Audio Drivers
- Added new boards
- Added VIA Drivers
- Updated JIDA

**In 1.9:**

- Support for Windows CE 4.1

**In 1.8:**

- Support for Windows CE 4.0
- Added Serial Mouse Driver again.
- Replaced serial drivers with configurations based on MS serial.
- Removed obsolete components: Touch and Webserver
- No support in this initial CE 4.0 version for Floppy and 386, partial support for InitIP

**In 1.7:**

- Added Registry Persistence
- Updated Davicom Network Driver
- Updated IDE Driver
- Updated JIDA

**In 1.6:**

- MGX Display Driver
- Updated Davicom Network Driver
- Added OrigName to enable SMB client by default
- Updated JIDA
- Corrected typos
- JStart

**In 1.5:**

- Support for Windows CE 3.0
- ATI Rage Mobility Driver
- Davicom Network Driver
- AMD PCNet Network Driver
- ELOtouch and MicroTouch Panel Drivers
- Init IP Address from EEPROM Driver

---

## Requirements

---

To run the **Kontron<sup>®</sup>** Solution Pack must install the following products:

- **US** Windows 2000 SP2 or XP (Please do not use other language versions)
- Microsoft Windows CE Platform Builder 5.0

---

## Installation

---

Please make sure the Windows CE Embedded Toolkit or Platform Builder has been installed properly.

**WARNING:** The **Kontron<sup>®</sup>** Solution Pack should be installed into a clean Windows CE ETK. Any files you might have modified could be overwritten. So please make a backup of any changes you might have made.

---

## Windows CE 5.0

---

To install support for Windows CE 5.0 simply double click the following file located on the distribution disk:

\\WinCE500\\Setup.exe

To add all **Kontron<sup>®</sup>** components contained in the Solution Pack to the Component Catalog you must perform the following steps manually:

- Open "Microsoft Windows CE .NET, Platform Builder 5.0"
- From the "File" menu select "Manage Catalog Features..."
- If a "Kontron.cec" is listed then select it and press the "Remove" button
- Press the "Import..." button
- Navigate to "C:\\WinCE500\\Platform\\JCEPC"
- Select the "Kontron.cec" file
- Press "OK"

The Kontron components are now available in the component catalog under "\\Third Party\\Device Drivers\\Kontron". The display drivers are under "\\Third Party\\Device Drivers\\Display".

## Bootloader and LOADCEPC

To install the **Kontron<sup>®</sup>** Bootloader Configuration Program (JSYSCE) and the **Kontron<sup>®</sup>** version of LOADCEPC follow these steps:

- Create a bootable floppy disk with MS-DOS 6.2 or Windows 9x
- Copy the two files JSYSCE(V).EXE and LOADCEPC.EXE contained in the C:\Wince\*\Platform\JCEPC\Tools directory to the root directory of the bootable floppy

If you use any components of the **Kontron<sup>®</sup>** Solution Pack then you must use the **Kontron<sup>®</sup>** version of LOADCEPC. It has the added advantage that you do not need HIMEM.SYS.

You must use JSYSCE to change the desired screen resolution prior to running LOADCEPC. The /d option of LOADCEPC does not work.

**IMPORTANT:** The current drive from where you launch LOADCEPC must have been prepared with JSYSCE. If you don't want to create a bootable Windows CE drive then use the -k option to prepare a drive.

If you have purchased the **Kontron<sup>®</sup>** Bootloader then please use only JSYSCE.EXE.

If have **not** purchased the boot loader then you can use JSYSCEV.EXE to change the video mode for LOADCEPC.EXE. However this version does not allow you to create a bootable Windows CE system. The command line parameters are the same.

See the next chapter for details.

## Bootable Windows CE Configuration

To create a bootable Windows CE on your target system follow these steps:

- Boot MS-DOS
- Partition disk
- Format disk
- Run the **Kontron<sup>®</sup>** CE Boot Configuration Utility
- Copy NK.BIN
- Reboot

### Screen shot:

```
A:\>fdisk
A:\>format c:

A:\>jsysce c: CTF640*480

Kontron Windows CE boot configuration program
Using base video configuration: Chips & Tech 640*480
Setting up Windows CE on drive C:
Drive has been prepared successfully.
Please copy the Windows CE image file NK.BIN to C:\

A:\>_
```

**Help Screen:**

```

A:\>jsysce

Kontron Windows CE boot configuration program 3.0 (2003.05.21)
usage: jsysce[ <drive>][ <video>]{ <switch>}
  <drive>: Windows CE boot drive (i.e. C:)
    Turn the given drive into a Windows CE boot drive.
    If the drive is omitted the boot configuration is updated.
  <video>: video configuration name
    320*200      any VGA
    CIR640*480   Cirrus Logic 640*480
    CIR320*240   Cirrus Logic 320*240
    CT320*240    Chips & Tech 320*240 (obsolete)
    CTF640*480   Chips & Tech 640*480 (fast driver F!)
    ATI640*480   ATI Rage 640*480
    MGX640*480   MGX 640*480
    TP640*480    Topro 640*480
    F640*480     VESA Flat 640*480
  <switch>:
    -s          no "Starting Windows CE..." sign-on
    -p          no progress periods
    -k          keep boot sector (just create configuration)
    -m          pressing shift boots MS-DOS (dual boot)
    -c:<num>    debug COM port (0=none)
    -i          enable DIMM IO card serial COM3/4
    -r          restore registry from CEREG.BIN (FlushRegKey(HKLM) to save)
  example: jsysce c: CTF640*480
A:\>_

```

The -m switch allows you to boot the operating system that was previously present on the boot drive before running JSYSCE for the first time. This might be MS-DOS. To boot the previous OS simply press an hold the Shift key or press the CAPS LOCK key before the "Starting Windows CE..." message appears.



---

## Windows CE Image Configuration

---

---

### Visual Platform Builder Components

---

In Windows CE Platform Builder 5.0 you can and should use two other methods **instead** of setting the environment variables in your *project.bat* file.

#### Component Catalog

You can use drag and drop to simply add components from the Component Catalog to your current project. Please refer to the installation section on how to add all Kontron<sup>®</sup> components contained in the Solution Pack to the Component Catalog.

The Kontron components are available in the component catalog under "Third Party\Device Drivers" and then "Display", "Network", "Serial", and "Kontron". The disk drivers are under "\CoreOS\Hardware Support\Storage Devices". Choose the with the Kontron PCI IDE Driver if your board has an PCI IDE Controller **OR** one or more of the Kontron ISA/Plain IDE drivers if your board has an ISA IDE Controller. Never choose both! Please note that you should remove "Audio" and "PCMCIA" keys as well as the ddi\_flat driver if that's added to you project by default.

BSPs (Board Support Packages) are provided for some boards. They usually select the appropriate Display and Ethernet drivers. For other boards choose "Kontron All Boards" JCEPC and select the required driver manually.

#### Setting Environment Variables Visually

You can also define the variables by choosing the "Settings..." menu item from the "Platform" menu. The Platform Settings dialog appears. In the upper left combo box under "Settings for" choose "All Configurations". Select the "Environment" tab. Add the name of the desired environment variable and the set the value to 1 to activate the option.

**PLEASE DO \*\*\*NOT\*\*\* USE THESE COMPONENTS \*\*\*AND\*\*\* DEFINE THE CORRESPONDING ENVIRONMENT VARIABLE AT THE SAME TIME IN THE ABOVE DIALOG OR PROJECT.BAT FILE. THIS IS UNNECESSARY AND CAUSES CONFUSION.**

## Important Notes

A bug in Platform Builder 5.0 causes the incorrect board name to be displayed in the project tree. However a the proper name is shown in the Release/Debug combo box in the tool bar, the correct drivers are displayed, and the correct board will be used for the build.

A new "feature" in PB 5.0 prevents drivers that are chosen by a BSP from being removed in the GUI projects catalog items tree. A message: "This build environment is always including the selected item" appears. To remove individual drivers or components, create a file called WINCE500\PBWorkspaces\<ProjectName>\WINCE500\JCEPC\_x86\PostWinCE.bat and set the corresponding J\_CEPC\_\* environment variable to a blank value. In PB right click in the project tree and choose "Refresh Catalog Items" for the changes to take effect.

### **DO NOT MODIFY THE JCEPC.BAT FILE!**

To change to a different Kontron BSP in an existing project, copy the file WINCE500\PBWorkspaces\<ProjectName>\WINCE500\JCEPC\_x86\\_setbsp.bat to setbsp.bat (no leading underscore) and modify the BSP name to any Kontron BSP name as it appears in the Component Catalog (EXACT case and spelling).

## Hardware Notes

If the BIOS option is available then always set **"PNP OS installed"** to **"No"** in the BIOS setup.

On boards with PCI please make sure the IRQ 9 is not assigned to the Ethernet chip. To achieve this, mark IRQ 9 as "Reserved" in the BIOS setup under "Advanced", "PCI Configuration", "PCI/PNP ISA IRQ Resource Exclusion". Then reboot. Later you can mark the IRQ 9 as available again if you need it for other devices.

On both the development workstation and the target enable the parallel port and set it to EPP or BIDIR (and not ECP or Normal). If possible set the port to 378h and IRQ7.

Here is a table that lists the required drivers:

Board	Display	Network	Audio	USB	JSYSCE	PCI
DIMM/PC-386 DIMM/PC-486 DIMM/PC-520	ddi_jump	Crystal			CIR/TP	
MOPS/586		Crystal				
MOPSIcd4	ddi_jct	Crystal			CTF	
MOPS/686+		Intel		OHC		X
MOPSIcd6 coolMONSTER/S littleMONSTER/2	ddi_jct	Intel	jwaves1	OHC	CTF	X
ETX-P1 coolMONSTER/P3 ETX-P3	ddi_jati	Intel	jwaves1	UHC	ATI	X
ETX-MGX MOPSIcdGX1 JREX-GX1 ePanel-mgx	ddi_gx	Davicom	jwavegx	OHC	MGX	X
Xboard<861>	ddi_gx	Intel	jwavegx	OHC	MGX	X
ETX-P3m/C3m ETX-VE	ddi_via	Intel	uam3058	UHC	F	X
ETX-P3e/C3e JREX-P3 JREX-VE	ddi_via	Davicom	jwaves1	UHC	F	X
coolMONSTER/VE	ddi_via	Davicom	uam3058	UHC	F	X
MOPSIcd7 MOPSIcdVE	ddi_via	Davicom		UHC	F	X
ETX-PM, ETX-P3T ETXexpress-PM EPIC-PM, EPIC-CE JREx-PM, JREx-CE speedMOPSIcdPM speedMOPSIcdCE PCI-951 CV-Server	ddi_igd	Intel	waveich4	UHC	F	X
ETX-P3Tx	ddi_flat	Intel	waveich4	UHC	F	X
ETX-elite	ddi_smi	Davicom	jwavecmu	OHC	F	X
MOPSIcdSE MOPSIcdTM	ddi_smi	Davicom		OHC	F	X
ETX-LX	ddi_gx	Intel	ngxuamaud	OHC	MGX	X

## Including Additional Components

### Fast Display Driver (Chips & Tech ONLY)

```
set J_CEPC_DDI_FASTCT=1
```

### ATI Rage Display Driver

```
set J_CEPC_DDI_ATI=1
```

### MGX Display Driver

```
set J_CEPC_DDI_GX=1
```

### IDE Driver (Primary Master)

```
set J_CEPC_IDEDISK=1
```

### Ethernet (Cirrus Logic ONLY)

```
set J_CEPC_ETHER=1
```

### Ethernet (Intel GD82559 ONLY)

```
set J_CEPC_ETHER_INTEL=1
```

### Ethernet (AMD ONLY)

```
set J_CEPC_ETHER_AMD=1
```

### Ethernet (Davicom ONLY)

```
set J_CEPC_ETHER_DAVICOM=1
```

### Audio (Geode ONLY)

```
set J_CEPC_WAVE_GX=1
```

### Audio (ESS Solo 1 ONLY)

```
set J_CEPC_WAVE_S1=1
```

### JIDA32 Library API

```
set J_CEPC_JIDA=1
```

## Configuration Options

### Display driver

For Kontron boards that are equipped with Chips and Technology CT65554 or CT69000 graphics chips you can choose to include the fast CT Display Driver by adding the following line:

```
set J_CEPC_DDI_FASTCT=1
```

To hide the mouse cursor

```
set J_CEPC_DDI_NOCURSOR=1
```

### Serial driver

To default all serial drivers to 115200 baud

```
set J_CEPC_SERIAL_115K=1
```

To enable the specified COM port

```
set IMGCOM0=1
set IMGCOM2=1
set IMGCOM3=1
```

Notes on COM numbering:

The logical device name is one less than the physical port so:

COM0: under CE refers to the physical COM1: (Port 03f8h, IRQ 4)  
 COM1: under CE refers to the physical COM2: (Port 02f8h, IRQ 3)  
 COM2: under CE refers to the physical COM3: (Port 03e8h, IRQ 10)  
 COM3: under CE refers to the physical COM4: (Port 02e8h, IRQ 11)

Interrupt lines cannot be shared between ports.

By default COM0: is shared as debugging port if you use LOADCEPC to launch Windows CE and exclusively available to the application if Windows CE is launched using the boot loader.

To configure the port addresses or add additional ports check the file  
 PLATFORM\JCEPC\FILES\PLATFORM.REG

**IMPORTANT:** If you are using a Windows CE Services serial debugging connection then REPLLOG.EXE will pick the first available COM port in that order: COM3:, COM2:, COM0:, COM1:.

### Serial Mouse Driver

The serial mouse driver can be included by setting:

```
set J_CEPC_SERMOUSE=1
```

By default the driver will use logical COM1:. To configure the port modify the Port entry in the file  
 PLATFORM\JCEPC\FILES\PLATFORM.REG:

```
[HKEY_LOCAL_MACHINE\Drivers\BuiltIn\SerMouse]
"Port"=dword:1
```

## Ethernet driver

To enable a demo IP address of 89.0.0.222 set these variables:

```
set J_CEPC_ETHER_FIXED_IPADDR=1
set J_CEPC_ETHER_FIXED_IPADDR_DEMO=1
```

If you are planning to work without DHCP and would like to use a fixed TCP/IP address then make the following additions:

```
set J_CEPC_ETHER_FIXED_IPADDR=1
```

In any \*.reg file set:

```
[HKEY_LOCAL_MACHINE\Comm\CRYSTAL1\Parms\TcpIp]
"IpAddress"="89.0.0.222"
"Subnetmask"="255.255.255.0"
"EnabledDHCP"=dword:0
```

Replace 89.0.0.222 with your TCP/IP address.

To use the crystal driver without Dial Up Networking (PPP) add this line

```
set J_CEPC_ETHER_BIND_ETHER_ONLY=1
```

Interrupts under Windows CE 5.0 are detected automatically with most drivers.

For the Crystal Ethernet under CE 5.0 you need to set the interrupt for which the card has been configured. The default is IRQ10. To set the driver to IRQ5 you need to set the environment variable J\_CEPC\_ETHER\_CRYSTAL\_IRQ5 to 1. For all other IRQs you need to manually change the setting in PLATFORM.REG

You can use the DOS based SETUP program to view or change the current IRQ.

## IDE Driver Options

To enable the hard or flash disk support for Primary Master:

```
set J_CEPC_IDEDISK=1
```

To enable the hard or flash disk support for Primary Slave:

```
set J_CEPC_IDEDISK1=1
```

To enable the hard or flash disk support for Secondary Master:

```
set J_CEPC_IDEDISK2=1
```

To enable the hard or flash disk support for Secondary Slave:

```
set J_CEPC_IDEDISK3=1
```

## PC Card Support

Disable PC Card support under Windows CE 5.0

```
set IMGNOPCMCI=1
```

### **ELAN (DIMM-PC 486) Options**

IMPORTANT: Use this setting on ELAN boards like DIMM-PC 486

```
set BSP_FPEMUL=1
```

### **Demo Options**

To include a JIDA test application

```
set J_CEPC_JIDA_TEST=1
```

To include a the graphical Kontron demo application JDemoDlg (if available)

```
set J_CEPC_JDEMODLG=1
```

---

## **Hints**

---

Attending one of our Windows CE Seminars helps you avoid many of the pitfalls of getting started with Windows CE.

## Document Revision History

Filename	Date	Edited by	Revision	Alteration to preceding revision
JWINCE.DOC	1998.11.01	DP	1.0	Initial version for CE 2.0 and 2.10
JWINCE.DOC	1999.03.26	DP	1.1	Updated for CE 2.11
JWINCE.DOC	1999.05.11	DP	1.2	Updated for new setup, merged in Ethernet and Floppy, added Serial
JWINCE.DOC	1999.08.16	DP	1.3	Updated for CE 2.12
JWINCE.DOC	1999.10.27	DP	1.3	Updated for fast CT display driver, new Intel Ethernet driver, JIDA, serial touch screen driver, JSYSCEV
JWINCE.DOC	1999.12.08	DP	1.4	Added WebServer and Platform Builder Component Catalog (CEC), fixed Slave IDE Only configuration
JWINCE.DOC	2000.08.21	DP	1.5	Updated for CE 3.0, added support for ATI Rage Mobility, various Touch Panel and Network Drivers and Init IP.
JWINCE.DOC	2001.03.08	DP	1.6	Added support for MGX, updated Davicom, changed JIDA Win32 API to JIDA32 Library API, added hardware section, JStart.
JWINCE.DOC	2001.11.23	DP	1.7	Added registry persistence, updated Davicom, IDE Driver, and JIDA32 Library API.
JWINCE.DOC	2002.04.11	DP	1.8	Updated for CE 4.0. Removed obsolete drivers.
JWINCE.DOC	2002.10.27	DP	1.9	Updated for CE 4.1. Updated Kontron brand name.
JWINCE.DOC	2003.06.17	DP	2.0	Updated for CE 4.2.
JWINCE.DOC	2003.10.02	DP	2.0	Added VIA drivers and new boards.
JWINCE.DOC	2004.03.15	DP	2.0	Added ePanel.
JWINCE.DOC	2004.08.06	DP	2.1	Updated for CE 5.0
JWINCE.DOC	2006.08.22	DP	2.4	Added new boards. Added and updated drivers.