MJX440 for V831/V832 User's Manual

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Notes

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Congratulations on your recent purchase of MJX440 for V831/V832("MJX440").

This manual is composed of the following contents:

Chapter 1. Overview

This chapter describes the product configuration, provides an overview of MJX440, and explains the nomenclature of the various components.

Chapter 2. Setting the Parallel Interface

This chapter describes how to mount the parallel interface (a PCI card or a PCMCIA card) and how to install a device driver for it.

Chapter 3. Connecting the Hardware

This chapter describes how to connect the MJX440 to a host as well as how to connect the MJX440 to a target system.

Chapter 4. Installing the Software

This chapter describes how to install the software for the operation of MJX440.

Chapter 5. Setting the Environment for MJX440

This chapter describes how to set the environment before using the MJX440.

Chapter 6. Starting and Ending Software

This chapter describes how to start and end the software for the operation of the MJX440.

Chapter 7. MJX440 Commands

This chapter describes how to use the various MJX440 commands.

Chapter 8. Rapid Downloading

This chapter describes the procedure for effecting rapid downloading.

Appendixes

The Appendixes provide additional technical information, such as specifications and restrictions that are applicable to the target system.

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CONTENTS

Chapter 1. Overview

This chapter describes the product configuration, provides an overview of MJX440, and explains the nomenclature of the various components.

1.1 Product Makeup

When shipped, each MJX440 for V831/V832 package contains the items indicated below. If you find any items missing, please contact Lightwell Corporation.

□ MJX440 for V831/V832 system unit



□ AC adapter



 \Box AC cord



 $\hfill\square$ Parallel interface (PCI card or PCMCIA card) and a

parallel interface cable *1



^{*1} When shipped, the package contains a cord for either a PCI card or PCMICA card, but not both.

 $\hfill\square$ ROM probe *1



 $\hfill\square$ Two ROM probe cables



□ External trigger cable



 $\hfill\square$ User's manual



 $\hfill\square$ Warranty card

Warranty card

 $\hfill\square$ User registration card



*1 The type of a ROM probe included in the package depends on the type of ROM used in the system. For details, see "Table 1–1 Factory–shipped ROM probes" on the following page.

Chapter 1. Overview

5016	ROM probe	
ROM type	ROM probe board	ROM plug
27010	J-101A×2	32 pin imes 4
27020		
27040		
27080		
271000		
27C4000 16bit	J-102A×2	$40 \text{pin} \times 2$
27C8000 16bit	J-102A×2	$42 \text{pin} \times 2$
27C16000 16bit		
271024	J-103A×2	$40 \mathrm{pin} imes 2$
272048		
274096		
27C4000 8bit	J-104A×2	40 pin imes 4
27C8000 8bit	J-104A×2	$42 \mathrm{pin} \times 4$
27C16000 8bit		

Following is a list of ROM probes that are included in the initial package, which depend on the type of ROM used in the product:

Table 1–1 Factory–shipped ROM probes

1.2 Overview of MJX440

MJX440 is an N-Wire connector equipped developmental aid device for the debugging of a V831 or V832 target system.

MJX440: Its Principal Features

- Because it uses the target system's N-Wire connector, MJX440 allows ready connection to the target system.
- MJX440 operates stably even when working with a high-speed CPU.
- MJX440 permits any in-cuicuit connection to the ROM and can debug programs running on ROM.
- MJX440 can be used in conjunction with the high-level language Debugger MULTI.
- The use of MJX440 commands permits the full use of the hardware on which MJX440 is based.
- MJX440 supports a real-time tracing function.
- MJX440 supports a hardware breakpoint function.
- MJX440 permits the rapid downloading of programs (440 kbytes/sec for N-Wire connection; 4Mbytes/sec for ROM in-circuit connection)

Minimum configuration



Figure 1-1. Minimum configuration

MJX440 operates in the minimum configuration showin in Figure 1-1. When used in its minimum configuration, MJX440 can debug programs that are stored in the RAM of the target system. In this operating mode, the program to be debugged is downloaded onto the RAM of the target system through the N-Wire cable.

In the minimum configuration, MJX440 can execute programs stored in the ROM, but it cannot download

programs onto the ROMm region or set software breakpoints. Debugging a ROM program requires a ROM in-circuit connection of MJX440.

ROM in-circuit connection



Figure 1-2. ROM in-circuit connection

Under a ROM in-circuit connection as shown in Figure 1–2, MJX440can also debug programs that are stored in ROM. In this operating mode, the program to be debugged and stored in ROM is downloaded onto the emulation memory in the MJX440 rather than onto the RAM for the target system.

In this case, the ROM voltage is automatically recognized within the 2.5 $\sim 5 \mathrm{V}$ range.



External trigger cable connection

Figure 1–3. External trigger cable connection

As shown in Figure 1–3, an external trigger cable can be used to implement the following functionality:

- Displaying target system signal status information on the LED on the MJX440 (input)
- Storing target system signal status information in the realtime trace memory (input)
- Using the trace tigger as a logic analyzer trigger signal (output)
- Allowing the use of genetic signals, eligible for MJX440 command operation, on the target system (output)

Preliminary to using the MJX440

Before using the MJX440, you need to perform the preliminary steps described below, which can be performed by referring to Chapters 2 through 5. These steps need to be performed only once after the MJX440 is purchased.

- Setting the parallel interface
- Connecting the hardware
- Installing the software
- Setting the environment for the MJX440

Once these preliminary steps are completed, refer to Chapter 6 to start the software (MULTI or MJXDEB) for operating the MJX440. Normal startup of the software indicates that the preliminary steps were successfully completed. If the software fails to start properly, check to see whether there was an error in performing the preliminary steps.

For a description of how to use the compiler or MULTI, see the respective manuals and release notes. An explanation of MJX440 commands for using functions specific to MJX440 is given in Chapter 7.

Refer to Chapter 8 for a description of how to effect a rapid downloading.

About MULTI

MULTI is a high-level language debugger that can be executed under various environments. You can run MULTI under the MJX440 environment by calling the server program MJXSERV.

About MJXDEB

MJXDEB refers to a quick debugger that supports MJX440 commands only. MJXDEB may be a suitable choice when no high-level language debugging is needed or when the target system is to be checked by using the batch processing function.

1.3 Nomenclature



Power switch	This switch turn the power on and off.
DC IN connector	Connects the AC adapter.
HOST I/F connector	Connects the parallel interface cable.
N-Wire connector	Connects the N-Wire cable.
ROM1/ROM2connector	Connects the ROM probe cable. The top part is a ROM2 connector,
	the bottom part the ROM2 connector.
EXTERNALconnector	Connects the external trigger cable.
LED	Displays power and connector plug-in status information.

ROM probe



This cable connects the MJX440 to the ROM probe.
This refers to all probes that are connected to the target system ROM.
This is the circuit board part of the ROM probe (with jumper settings).
This is a unit by which a device is connected to the ROM socket of the
target system.

This chapter describes how to install the parallel interface (a PCI or PCMCIA card) as well as how to install the device driver for it.

2.1 Installing the Parallel Interface

PCI card

Install the PCI card in the PCI expansion slot of the host system by performing the procedures indicated below (refer to the host system manual for details):

- 1. Close all software on the host system; turn off the power for the host system.
- 2. Remove the cover from the host system unit.
- 3. Remove the cover from the expansion slot.
- 4. Install the PC card in the expansion slot.
- 5. Replace the system unit cover.
- 6. Go to Section 2.2, "Installing Device Drivers".

PCMCIA card

Install the PCMCIA card in the PCMCIA expansion slot of the host system by performing the procedures indicated below (refer to the host system manual for details):

- 1. Close all software on the host system; turn off the power for the host system. *1
- 2. Insert the PCMCIA card into the slot.
- 3. Go to Section 2.2, "Installing Device Drivers".

^{*1} If you system is running under Windows 95/Windows 98, you can insert the PCMCIA card while the power is still on, in which case the first step of turning off the power for the host system in Section 2.2, "Installing Device Drivers", can be skipped.

2.2 Installing Device Drivers

The installation of device drivers is divided into the following sections: *1

- Device drive installation procedure (PCMCIAcard, Windows 98)
- Device drive installation procedure (PCIcard, Windows 98)
- Device drive installation procedure (PCMCIAcard, Windows 95 OSR2)
- Device drive installation procedure (PCIcard, Windows 95 OSR2)
- Device drive installation procedure (PCMCIAcard, Windows 95 OSR1)
- Device drive installation procedure (PCIcard, Windows 95 OSR1)
- Device drive installation procedure (PCMCIAcard, Windows NT4.0)
- Device drive installation procedure (PCIcard, Windows NT4.0)

Versions of Windows 95 required different installation procedures.

Check the version of your Windows by double-clicking on **System** in the **Control Panel** (see the next page).



^{*1} MJX440 does not support Windows 3.1, 3.11, Windows NT3.5, or 3.51.

In this manual, the following versions are referred to as "Windows 95 OSR1":

Microsoft Windows 95 4.00.950

Microsoft Windows 95 4.00.950a

Similarly, the following version is referred to as **"Windows 95 OSR2"**: Microsoft Windows 95 4.00.950b

Please refer to the section of the manual that matches your environment.

Note that the device driver for the MJX440is named "ZDIF Interface Card Driver".

Device driver instillation procedure (PCMCIA card, Windows 98)

When the PCMCIA card is inserted with the power for the notebook PC turned on, the Add New Hardware Wizard detects the card and displays the following dialog, at which point you should click on "Next>":



Select "Detect the appropriate driver for your device (recommended)" and then click on "Next>".

新しいハードウェアの追加ウィザー	¢
	検索方法を選択してください。 © 腰用中のデバイスに最適なドライバを検索する「推奨) へ 特定の場所にあるすべてのドライバの一覧を作成し、インス トールするドライバを選択する
	< 戻る(日) 次へ > キャンセル

Load the CD-ROM labeled "*MJX440 for V831/V832 Tools Disk*" in the CD-ROM drive. Select "**Borwse (L)**" to specify the directory where the driver is located, e.g., "**D:¥Driver¥Win9x**" if the CD-ROM drive is drive D: (depending on your specific PC).

Click on "Next>".

新ししいトードウェアの追加ウィザ・	-k
	 新しいドライバは、ハードドライブのドライバデータベースと、次の選択 した場所から検索されます。検索を開始するには、じたへ」をクリックし てください。 「20ラビーディスクドライブ(2)」 「CD-ROM ドライブ(2) 「Microsoft Windows (Little(2)) 「検索場所の指定(2) [24] Diver#Window 参照(2)
-	< 戻る(日) 次へ > キャンセル

If the directory contains the drive file, the following dialog appears, at which point click on "Next>":

If a message "A drive for this device was not found" message appears, click on "<Back (B)" to specify the correct directory where the drive file is located.

新ししいトードウェアの追加ウィザード		
	次のデバイス用のドライバ ファイルを検索します。: ZDIF Interface Card [POMCIA/PO Card] このデバイスに最適なドライバをインストールする準備ができました。 別 のドライバを選択するとは、「戻る」をクリックしてください。 したへ」をクリ ックすると統行します。 ドライバのある場所: D*DRIVER#WIN9X#ZDIF_INF	
く 戻る(田) たヘンニー キャンセル		

The driver is automatically installed; the dialog shown below appear.

A "ping" sound goes off when the drive is correctly installed, at which point click on "Finish".

<u>A buzzar sound indicates an installation failure</u>. If this happens, close the installation process and refer to Appendix J, "Troubleshooting", to resolve the problem.



To confirm that the device driver was installed correctly, double-click and open **System** in the **Control Panel**, and click on the **Device Manager** tab.

Click on "ZDIF" class to display the properties of the "ZDIF Interface Card [PCMCIA/PC Card" below (either double-click or click on "Properties (R)".

9256070/54 2
金岐 デバイスマネージャ ハードウェア プロファイル パフォーマンス
○ 種類的に表示① ○ 接続的に表示②)
CD-ROM CD-ROM CD-ROM CO-ROM CO-RO
OK キャンセル

Click on "Resources" tab to make sure that the "Conflicting devices" item indicates "No coflict".

ZDIF Interface Card IPCMCIA/PC Card)のプロパティ	Ŷ×
金蔵 ドモババ リソース	
ZDIF Interface Card [PCMCIA/PC Card]	
▶ 自動設定を使习[1]	
※1730年年 基本設定 0000	×
リソースの種類 設定 1/0 の版画 0220 - 023F	
10日の正常の) 動会するデバイス:	
酸合は走りません。	×
ОК	キャンセル

Device driver instillation procedure (PCI card, Windows 98)

When the PCI card is inserted and the power for the host system is turned on, the Add New Hardware Wizard detects the card and displays the following dialog, at which point you should click on "Next>":



Select "Detect the appropriate driver for your device (recommended)" and then click on "Next>".



Load the CD-ROM labeled "*MJX440 for V831/V832 Tools Disk*" in the CD-ROM drive. Select "**Borwse (L)**" to specify the directory where the driver is located, e.g., "**D:¥Driver¥Win9x**" if the CD-ROM drive is drive D: (depending on your specific PC).

Click on "Next>".

新しいハードウェアの追加ウィザー	ĸ
	新しいドライバは、ハード ドライブのドライバ データベースと、次の選択 した場所から検索されます。検索を開始するには、 D:x へ」をクリックし てださい。 「 フロッビー ディスク 下ライブ(E) 「 OD-ROM ドライブ(C) 「 Microsoft Windows Update(M) レ 検索場所の指定(L): D*Driver*Win9x
	< 戻る(日) 次へ > キャンセル

If the directory contains the drive file, the following dialog appears, at which point click on "Next>":

If a message "A drive for this device was not found" message appears, click on "<Back (B)" to specify the correct directory where the drive file is located.

新しいハードウェアの追加ウィザード	
	は次のデバイス用のドライバ ファイルを検索します。: ZDIF Interface Card [PCMCIA/PC Card] このデバイスに最適なドライバをインストールする準備ができました。 別 のドライバを増択するには、 I戻る] をクリックしてください。 したへ] をクリ ックすると続行します。 ドライバのある場所: D#DRIVER#WIN9XWZDIF_INF
< 戻る(田) (大ヘン) キャンセル	

The driver is automatically installed. When the following dialog appears, end the process by clicking on **Finish**:



To confirm that the device driver was installed correctly, double-click and open **System** in the **Control Panel**, and click on the **Device Manager** tab.

Click on "ZDIF" class to display the properties of the "ZDIF Interface Card [PCMCIA/PC Card" below (either double-click or click on "Properties (R)".



Click on "Resources" tab to make sure that the "Conflicting devices" item indicates "No coflict".

ZDIF Interface Card (POTVD:/フリパティ	? ×
金粮「ドライバ リソース」	
ZDIF Interface Card [PCI]	
☑ 自動設定を使う00	
型(1)73(1)定(2) 基本設定 0000	<u>v</u>
リソースの種類 IRC室 メモリの利用 05400000 - 0540007F 1/0 の範囲 1060 - 107F	
RETTED	
競合するデバイス:	_
瞬音はありません。	~
	¥.
OK (***)	セル

Device driver instillation procedure (PCMCIA card, Windows 95 OSR2)

When the PCMCIA card is inserted with the power for the notebook PC turned on, the Add New Hardware Wizard detects the card and displays the following dialog, at which point you should click on "Next>":

デバイス ドライバ・ウィザード	
	このウィザードで、)次のインストールができます。 Lightwell/ZAX-PC Cardl/F32 最新のドライバをローカルドライブ、ネットワークおよびパクターネットから検 出します。 このデバイスに付属のフロッピーディスクまたは CD-ROM がある場合 は挿入してください。 更新されたドライバを自動的に検出することをお勧めします。「次 へ」を別ックすると自動検出が始まります。
	< 展50 () () () () () () () () () () () () () (

The system automatically searches the A: drive for the device driver. Failing to find it, the system displays the dialog shown below.

Click on "Browse (O) ...".

デパイス ドライバ ウィザート	
	このデバイス用のトライハが見つかりませんでした。 トライハをここでインストールしない場合は、「完了」 ありったします。 自 分でトライハを検索する場合は、「境所の指定」をかったます。 自 動検索を始めるには、「戻る」 を押してください。 場所の指定(2)-
	〈 戻る(日) 完了 キャンセル

Load the CD-ROM labeled "*MJX440 for V831/V832 Tools Disk*" in the CD-ROM drive. Select "**Borwse (L)**" to specify the directory where the driver is located, e.g., "**D:¥Driver¥Win9x**" if the CD-ROM drive is drive D: (depending on your specific PC).

Click on "OK".

空場所の指定	×
使用するドライバがあるフォルダ名を入力してください。「参照」をソリックするとフォルダの検索ができます。	
爆所(L) D.*Driver*Win9x 参照(R)_	

The driver file is detected; the dialog shown below appears.

Click on "Finish".

デバイス ドライバ・ウィザート	
	このデバイス用の更新されたドライバが見つかりました。
	ZDIF Interface Card [PCMCIA/PC Card]
	このトライルを使用する場合は、「完了」を押してください。別の ドライルを検索したい場合は、「場所の指定」を押してください。
🌯 🍙	
	Win9x
~	場所の指定(2)
	< 戻る(B) 第7 4+ンセル

If the following message appears, click on "OK" to go to the next step:

😨 ምብአንር	の挿入 🛛 🕅
8	ZAX ZDIF Driver Installation Disk: うへルの付いたディスジを挿入して [OK] を押してください。
	OK

Respecify the directory "D:¥Driver¥Win9x" where the driver file is located; click on "OK".



A "ping" sound goes off when the drive is correctly installed.

A buzzar sound indicates an installation failure. If this happens, close the installation process and refer

to Appendix J, "Troubleshooting", to resolve the problem.

To confirm that the device driver was installed correctly, double-click and open **System** in the **Control**

Panel, and click on the Device Manager tab.

Click on "ZDIF" class to display the properties of the "ZDIF Interface Card [PCMCIA/PC Card" below (either double-click or click on "Properties (R)".



Click on "Resources" tab to make sure that the "Conflicting devices" item indicates "No coflict".

ZDIF Interface Card [PCMCIA/PC Card]のプロパライ	? ×
情報 ドライヤ゙ リンース	
ZDIF Interface Card [PCMCIA/PC Card]	
リソースの)酸定(日):	
リソースの種類 設定	
<u> VO 木'-トアドレス</u> 0220 - 023F	
(3定の登料名(6) 基本設定 0000	2
(REOKELC). Febbreu	
舞合するデバイス:	_
酸合なし	~
	-
ок +юл	34

Device driver instillation procedure (PCI card, Windows 95 OSR2)

When the PCI card is inserted and the power for the host system is turned on, the Add New Hardware Wizard detects the card and displays the following dialog, at which point you should click on "Next>":



The system automatically searches the A: drive for the device driver. Failing to find it, the system displays the dialog shown below.

Click on "Browse (O) ...".

デバイス ドライバ ウィザード	
	このデバイス用の更新されたドライバが見つかりませんでした。す でに最新のドライバが使用されている可能性があります。 現在のドライバをそのまま使用する場合は、「完了」 を押してくださ し、自分で更新されたドライバを探す場合は、「場所の指定」 を押 してください。
	< 戻る(B) 完了 キャンセル

Load the CD-ROM labeled "*MJX440 for V831/V832 Tools Disk*" in the CD-ROM drive. Select "**Borwse (L)**" to specify the directory where the driver is located, e.g., "**D:¥Driver¥Win9x**" if the CD-ROM drive is drive D: (depending on your specific PC).

Click on "OK".

空場所の指定	×
使用するドライバがあるフォルダ名を入力してください。[参照]をソリックするとフォルダの検索ができます。	
爆所LD D.¥Driver¥Win.9x 参照(B)_	
<u>ок</u> <u></u> ++>±л	J

The driver file is detected; the dialog shown below appears.

Click on "Finish".

デバイス ドライバ ウィザード	
	このデバイス用の更新されたドライバが見つかりました。
	ZDIF Interface Card [PCMCIA/PC Card]
	このドライバを使用する場合は、「完了」を押してください。別の ドライバを検索したい場合は、「場所の指定」を押してください。
% 🌫	
\$	Win9x
	場所の指定(Q)
	< 戻る(B) 第7 4+ンセル

The driver is automatically installed.

If the following message appears, click on ${}^{\!\!\!"}OK"$ to go to the next step:

ディスクの共	入 🛛 🕺
8	'ZAX ZDIF Driver Installation Disk' うへルの付いたディスジを挿入して [OK] を押してください。
	OK

Respecify the directory "D:¥Driver¥Win9x" where the driver file is located; click on "OK".

	×
AX ZDIF Driver Installation Disk 上のファイル dif.vxd が見つかりませんでした。	ок
AX ZDIF Driver Installation Disk を選択した ライバに入れて、[OK] を押してください。	+++>+++
	スキッフ <u>(S</u>)
	詳細(<u>D</u>)
	参照(<u>B</u>)
	AX ZDIF Driver Installation Disk 上のファイル liftwxd が見つかりませんでした。 AX ZDIF Driver Installation Disk を選択した ライフリこ入れて、[OK] を押してください。 e (ルのモ[*] 元(C): #Driver¥Win9x

To confirm that the device driver was installed correctly, double-click and open **System** in the **Control**

 $\ensuremath{\textbf{Panel}}\xspace$, and click on the $\ensuremath{\textbf{Device Manager}}\xspace$ tab.

Click on "ZDIF" class to display the properties of the "ZDIF Interface Card [PCMCIA/PC Card" below (either double-click or click on "Properties (R)".



Click on "Resources" tab to make sure that the "Conflicting devices" item indicates "No coflict".

ZDIF Interface Card [POU(/)7'ロハ'ティ	?	×
情報 ドラ (ビ ダソース		
ZDIF Interface Card [PCI]		
リソースの)設定(B):		
リソースの種類 計定 FFEEFF80 - FFEEFFFF VO ホートアドリス EF80 - EF9F		
15字/小学科-2/25 第十時空 2002		
1000000000000000000000000000000000000		
歳合するデバイス:		
競合なし	X	
ОК 4+	ンセル	J

Device driver instillation procedure (PCMCIA card, Windows 95 OSR1)

When the PCMCIA card is inserted with the power for the notebook PC turned on, the Add New Hardware Wizard detects the card and displays the dialog shown below.

Select "Hardware vendor-supplied driver (M)", click on "OK".

新しいいードウェア	? ×
Lightwell/ZAX-PC Cardl/F32	
新しいハードウェア用にインストールするドライハを選択してください。	
C Windows 連進のどう(いいい)	
● ハードウェアの製造元が提供するドライバM	
○ 一覧から選ぶ(S)	
○ ドライハをインストールした は、KD)	
ОК + +уън	<u>^⊮プℍ</u>

Load the CD-ROM labeled "MJX440 for V831/V832 Tools Disk" in the CD-ROM drive.

For "Copy distribution file from", specify the directory where the driver is located.

For example, specify **"D:¥Driver¥Win9x"** if the CD-ROM drive is drive D: (depending on your specific PC).

Click on "OK".

フロッピー ディスクからインストール	×
	ОК
デルゴスの製造元が配布するインストール ディスク を指定したドライブに入れて、[OK] を押 してください。	16)加 参照(<u>B</u>)
配布ファ仙の北*-元: D:¥DRIVER¥WIN9X	

The driver is automatically installed. A "ping" sound goes off when the drive is correctly installed, at which point click on **"Finish**".

<u>A buzzar sound indicates an installation failure</u>. If this happens, close the installation process and refer to Appendix J, "Troubleshooting", to resolve the problem.

To confirm that the device driver was installed correctly, double-click and open **System** in the **Control**

Panel, and click on the Device Manager tab.

Click on "ZDIF" class to display the properties of the "ZDIF Interface Card [PCMCIA/PC Card" below (either double-click or click on "Properties (R)".

<u> </u>	? ×
住民 デッパイスマネージャ ハートウェア環境 ハフォーマンス	
 ● 種類別に表示① ● 接続別に表示② 	
◆ コンピュータ 由・◆ PC <u>MCIA ソケット</u>	
ZDIF ZDIF Interface Card [PCMCIA/PC Card]	
■ ■ ネットワーク アタウンタ ■ − ■ ハートド ディスク コントローラ	
フ [*] ロハ [*] ティ(<u>R</u>) 更新(<u>F</u>) 削除(<u>E</u>) 印刷(<u>N</u>)	
OK	/

Click on "Resources" tab to make sure that the "Conflicting devices" item indicates "No coflict".

ZDIF Interface Card [POMOIA/PC Card]のプロパティ	? ×
「情報」ドアイハベ「リソース」	
ZDIF Interface Card [PCMCIA/PC Card]	
リゾースの設定(B):	
リソースの種類 設定	
<u> </u>	
該定の宣跡治但: 基本設定 0000	<u></u>
設定の変更(Q) ▼ 自動設定(Q)	
競合するデバイス:	
競合なし	<u> </u>
ОК	キャンセル

Device driver instillation procedure (PCI card, Windows 95 OSR1)

When the PCI card is inserted and the power for the host system is turned on, the Add New Hardware Wizard detects the card and displays the dialog shown below.

Select "Hardware vendor-supplied driver (M)", click on "OK".



Load the CD-ROM labeled "MJX440 for V831/V832 Tools Disk" in the CD-ROM drive.

For "Copy distribution file from", specify the directory where the driver is located.

For example, specify **"D:¥Driver¥Win9x"** if the CD-ROM drive is drive D: (depending on your specific PC).

Click on "OK".



The driver is automatically installed.

To confirm that the device driver was installed correctly, double-click and open **System** in the **Control Panel**, and click on the **Device Manager** tab.

Click on "ZDIF" class to display the properties of the "ZDIF Interface Card [PCMCIA/PC Card" below (either double-click or click on "Properties (R)".

Click on "Resources" tab to make sure that the "Conflicting devices" item indicates "No coflict".

-
×
-
1
Device driver instillation procedure (PCMCIA card, Windows NT4.0)

With the power for the notebook PC turned off, insert the PCMCIA card, and then turn on the power. When Windows NT4.0comes up, load the CD-ROM labeled "*MJX440 for V831/V832 Tools Disk*" in the CD-ROM drive.

Select "Start" and "Run (R)", and display the "Run" dialog.

In "Open (O)", specify "D:¥Driver¥WinNT40¥Setup.exe" (assuming that your CD-ROM drive is D: drive), and click on "OK".



The setup program starts.

Setup	X
Ð	MJX440 ZDIF Device Driver for Windows NT Setup is preparing the InstallShield(r) Wizard which will guide you through the rest of the setup process. Please wait.
	79 %

Click on "Next >", which automatically installs the driver.



The dialog shown below appears after the driver is installed.

Select "Yes, I want to restart my computer now", click on "Finish".

Setup Complete	
	Setup has finished copying files to your computer.
	Before you can use the program, you must restart Windows or your computer.
	Yes, I want to restart my computer now O No, I will restart my computer later.
20	Remove any disks from their drives, and then click Finish to complete setup.
	C Back Finish

Windows NT4.0 restarts.

To confirm that the driver was installed correctly, open "Devices" by double-clicking on it in the Control Panel. Look for the "ZDIF Interface Card Driver". Make sure that the status column indicates "Start" and the Startup column, "Startup".

1949AXW)	状態	スタートアップ	
wd90c24a		無効	 閉じる
wdvga		無効	DOM 5725
weitekp9		無効	DGN0392/
WINS Client (TCP/IP)	開始合	自動	停止①
Xea		差劲	ab 17-a1(0)
ZDBF Interface Card Driver	開始	自動	X9-17971B2
キーキシカラストドライバ	間絵	4274	ハートウェア フロファイル いき
リダイレクタ	開始	手動	-

Select "Start", "Program (P)", and "Control tool (common)" to launch the "Windows NT Diagnostic Program".

Click on the "Resources" tab, and then click on "I/O port (T)".

- 💹 Windows NT 記述所	プログラム - ¥¥VERSA_1		_ 🗆 🗙
ファイル(E) ヘルフ°(<u>H</u>)			
パージョン システム	ディスプレイ│ドライブ│メモリ │サー	-ヒス リソース 環境	[ネットワーク]
		HAL リソース	を含める(円) 🥅 📗
アドレス	デバイス	パス	種類 ▲
0060 - 0060 0064 - 0064 0170 - 0177	i8042prt i8042prt atapi	0 0 0	ISA ISA ISA
01CE - 01CF 01 E0 - 01F7	VgaSave atapi	0 0	PCI ISA
0220 - 023F	Zdif	0	ISA ISA
0378 - 037A 0388 - 038B 0380 - 038B	Parport maestro atirage	U 0 0	PCI PCI
03B0 - 03BB 03C0 - 03DF 03C0 - 03DF	VgaSave atirage VgaSave	0 0 0	PCI PCI PCI
03C4 - 03C5 03CE - 03CE	FsVga FsVga	0 n	内部、一
IRQØ (<u>I∕O ホ°−ŀ(Ţ)</u> DMA(<u>D</u>)	<u></u>	7`ハ`イス∖⊻
フ ° ロハ°テ	(P) 最新の情報に更新(R)	印刷(N)	ОК

Look for Zdif under "**Device**". Confirm that the I/O port assigned to the PCMCIA card is displayed under "Address".

In the Control Panel, open "PCcard (PCMCIA)" by double-clicking on it. Click and select "Lightwell/ZAX PC Card I/F32", click on the "Properties (R)" button.

PC 力-F' (PCMCIA) デバイス	? ×
ソウットの状態コントローラ	
PC カードおよびパケットは次のとおりです。	
Uchtwell/ZAX PC Gardl/F32 - ソケット 0 (分し) - ソウット 1	
プロパライB) 注 PC かードの挿入または取り出しの前にコルニュータの電源を切ってください。	
OK _+(1.751

Double click on "**Card information**" tab to confirm that "**Device status**" indicates "**Device is** operating normally".

L	ightwell/ZAX PC Car	dI/F32 プロノパティ		? ×
$\left(\right)$	カートや情報	リソース		
	Lightwell/	ZAX PC CardI/I	-32	
	デバイスの種類	(不明)		
	製造元:	Lightwell/ZA>	<	
	デバイス マップシ	利用不可		
<	・デッドイスの状態 デッパイスは正常に	動作しています。	>	
			ОК	キャンセル

Click on the "Driver" tab. Confirm that "Driver status" indicates "The driver was installed and started, the device was configured".

L	ightwell/ZAX PC CardI/F32 プロパティ	? ×
	カートリーク (ドライバーリ)ース)	
	Lightwell/ZAX PC CardI/F32	
	トライバ名: Zdif	
	ドライハ [・] ファ イル・ Zdif.sys	
/	下う小の状態	\searrow
$\overline{\ }$	トライバリはインストールおよび起動され、このデバイスを構成しました。	
	追加(<u>A</u>) 削除(E) 構成(C)	
	OK キャンt	zılı

Click on the "**Resources**" tab. Confirm that the "**Resource settings**" and the "**I/O range**" match one of the values listed below:

- 0220 023F
- 0260 027F
- 02E0 02FF
- 0320 033F
- 03E0 03FF

Lightwell/ZAX PC CardT/F32 プロパティ	? ×
カート"情報 ト・ライズ グワース	
Lightwell/ZAX PC CardI/F32	
リソースの設定:	
サノースの種類 設定	
L/O 範囲 220-23F	
OK +	キンセル

Device driver instillation procedure (PCI card, Windows NT4.0)

Insert the PCI card, and then turn on the power for the host system.

When Windows NT4.0comes up, load the CD-ROM labeled "*MJX440 for V831/V832 Tools Disk*" in the CD-ROM drive.

Select "Start" and "Run (R)", and display the "Run" dialog.

In "Open (O)", specify "Setup.exe" (assuming that your CD-ROM drive is D: drive , specify "D:¥Driver¥WinNT40¥Setup.exe", and then click on "OK".



The setup program starts

Setup	X
2	MJX440 ZDIF Device Driver for Windows NT Setup is preparing the InstallShield(r) Wizard which will guide you through the rest of the setup process. Please wait.
	79 %

Click on "Next >", which automatically installs the driver.



The dialog shown below appears after the driver is installed.

Select "Yes, I want to restart my computer now", click on "Finish".

Setup Complete	
	Setup has finished copying files to your computer. Before you can use the program, you must restart Windows or your computer.
	Yes, I want to restart my computer now, No, I will restart my computer later.
20	Remove any disks from their drives, and then click Finish to complete setup.
	< Book Finish

Windows NT4.0 restarts.

To confirm that the driver was installed correctly, open "Devices" by double-clicking on it in the Control Panel. Look for the "ZDIF Interface Card Driver". Make sure that the status column indicates "Start" and the Startup column, "Startup".

MAZ@	状態	スタートアップ		
wd90c24a		無効	•	閉じる
wdvga		無効		DOM: NO.
weitekp9		無効		06362927
WINS Client (TCP/IP)	開始合	自動		停止①
Xea		差劲		zh-17-2%0\
ZDIF Interface Card Driver	開始合	自動		X3-179719
キーキシートシカラストドライパ	間絵	5274	_	ハートウェア フロファイル 他
リダイレクタ	開始	手動	-	

Select "Start", "Program (P)", and "Control tool (common)" to launch the "Windows NT Diagnostic Program".

Click on the "Resources" tab, and then click on "I/O port (T)".

🧸 Windows NT	診断プログラム・	- ¥¥mukai2			-	. 🗆 X
ファイル(E) へル:	7°(<u>H</u>)					
パージョン	Vステム ディスプレ	~ >77 XEU	17-62 7	ソース 環境	[ネットワーク]	
				HAL リソース	を含める(<u>H</u>) [
アトレス	デバイス			パス	種類 ▲	
CEE8 -	CEEB STBVI	RGE		0	PCI	
D2E8 -	DEEB STEVI	RGE		0	PCI	
DAE8 -	DAEB STBVi	RGE		Ō	PCI	
DEE8 -	DEEB STBVI	RGE		0	PCI	
E6E8 -	E6EB STBVI	RGE		0	PCI	
EAE8 -	EAEB STBVi	RGE		Ō	PCI	
EEE8 -	EEEB STBVI FREB STBVI	RGE		0	PCI	
FAE8 -	FAEB STBVI	RGE		Ö	PCI	1
FEF8 -	FEEB STBVi	RGE		0	PCI	
	FF5F Zdit FF9F Pointe			U N	PCI	
1.100					·••	
IRQ	<u>p (</u> 1/0 ‡	кент у оми	4 <u>0</u>)	メモリ(M)	<u></u>	
7	ግ በስም (<u>P</u>)	最新の情報に更	新(R)	印刷(N)	OK	

Look for Zdif under "**Device**". Confirm that the I/O port assigned to the PCI card is displayed under "Address".

2.3 Removing/Uninstalling a Device Driver

[Note] A device driver should be removed/uninstalled only when necessary.

The device driver remove/uninstall procecure is divided into the following sections:

- Device driver removal/uninstallation procedure (PCMCIAcard, Windows 98)
- Device driver removal/uninstallation procedure (PCI card, Windows 98)
- Device driver removal/uninstallation procedure (PCMCIAcard, Windows 95 OSR2)
- Device driver removal/uninstallation procedure (PCIcard, Windows 95 OSR2)
- Device driver removal/uninstallation procedure (PCMCIAcard, Windows 95 OSR1)
- Device driver removal/uninstallation procedure (PCIcard, Windows 95 OSR1)
- Device driver removal/uninstallation procedure (PCMCIAcard, Windows NT4.0)
- Device driver removal/uninstallation procedure (PCI`card, Windows NT4.0)

Please refer to the section of the manual that matches your environment.

Removing/uninstalling device drivers (PCMCIA card, Windows 98)

With the PCMCIA card still inserted, on the **Control Panel**, double-click and open "**System**", and then click on the "**Device Manager**" tab.

Click on the "ZDIF" class, click and select "ZDIF Interface Card [PCMCIA/PC Card" that is located below it, and then click on the "Remove (E)" button.

システムのプロパティー・・···································
全般 デバイスマネージャ リードウェア プロファイル パフォーマンス
 ● 種類別に表示(①) ● 接続別に表示(②)
■ $2 \vee \ell_{2} - q$ • $2 \vee c_{2} - ROM$ • $POMOIA V J \gamma y \land$ • $2DIF$ • $2DIF$ • $2DIF$ • $2DIF$ Interface Card [PCMCIA/PC Card] • $4 \times -\pi - \kappa$ • $4 \times$
プロパティ(R) 更新(E) 削除(E) 印刷(N)
 OK キャンセル

When the "Confirm Device Removal" dialog appears, click on the "OK" button.

デバイス削退	余の確認	<u>?×</u>
\diamond	ZDIF Interface Card [PCMCIA/PC Card]	
警告 : こ(カデバイスをシステムから削除しようとしています。	
	0K ++>	ยน

If you want to completely delete the device driver information for the PCMCIA card, you should also delete the associated INF file.

To do this, start **Windows Explorer** and select "Folder Options (O) ..." in the "View (V)" menu. Double-click on the "View" tab on the "Folder Options" dialog

Remove the checkmark (off) from "Hide file extensions for known files", check off "Show all files" (on), and then click on "OK".

This displayes INF files.



Use **Explorer** to open the "Inf¥Other" directory under the system directory (default -- "C:¥Windows"), and delete the "Zaxzdif.inf" file.

エクスプローラ - Other							
ファイル(E) 編集(E)	表示心	移動(G)	お気に入	り(白) ツー	-ND - NI	ブ田	1
(中 · ⇒ · 展 :20	Ē.	y min		記 貼り付け	い) 元に戻す	、入	 プロ.
アドレス 🗀 C#WINDOWS	MINFOOT	HER					٠
すべてのフォルダ ・ ③ History ・ 〕 Ine ・ 〕 Inf ・ ① Catz ・ ③ Othe ・ 〕 Java ・ 〕 Media		名前 Atitvsnd HEOTEL Zaxzdif		<mark>977)</mark> 2К 1К 6К	ズ ファイルの B セットアッ B セットアッ B セットアッ B セットアッ	確執 ブ情報 ブ情報 ブ情報 ブ情報	
•		•					•

Removing/uninstalling device drivers (PCI card, Windows 98)

With the PCI card still inserted, on the **Control Panel**, double-click and open "**System**", and then click on the "**Device Manager**" tab.

Click on the "ZDIF" class, click and select "ZDIF Interface Card [PCI]" that is located below it, and then click on the "Remove (E)" button.

୬ステムのフ ゚ ロ <u>ヘ</u> ゚ティ	? ×
「情報」デバイスマネージャーノートウェア環境 ハウォーマンス	
 ● 種類別に表示① ● 接続別に表示② 	
→ 1)±°1-9	
田小雪 Hard disk controllers	
Universal serial bus controller	
ZDIF	
ZDIF Interface Card [PC]]	
□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	
 ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・	
IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	
	_
プロパティ(<u>R</u>) 更新(E) (削除(E)) 印刷(<u>N</u>).	
OK +t	シセル

When the "Confirm Device Removal" dialog appears, click on the "OK" button.

デバイス削退	余の確認 <u>?</u> ×
\diamond	ZDIF Interface Card [PCI]
警告:こ(カデバイスをシステムから削除しようとしています。
	OK キャンセル

If you want to completely delete the device driver information for the PCMCIA card, you should also delete the associated INF file.

To do this, start **Windows Explorer** and select "Folder Options (O) ..." in the "View (V)" menu. Double-click on the "View" tab on the "Folder Options" dialog

Remove the checkmark (off) from "Hide file extensions for known files", check off "Show all files" (on), and then click on "OK".

This displayes INF files.



Use **Explorer** to open the "Inf¥Other" directory under the system directory (default -- "C:¥Windows"), and delete the "Zaxzdif.inf" file.

🚉 エクスプローラ - Other							
ファイル(E) 編集(E) ;	表示心	移動(3)	お気に入	り(B) ツー	-ND - NI	ブ田	13
+ . ⇒ . ≣5 ±23		y min		。 脂切付け) 元に戻す	、入 削除	_[プロ.
アドレス 🗀 C#WINDOWS	WINFOOTH	IER					٠
すべてのフォルダ ・ ③ History ・ 〕 Ime ・ 〕 Inf ・ 〕 Cata ・ ③ Othe ・ 〕 Java ・ 〕 Media		名前 Atitvsnd NECTEL Zaszdíf		94) 2К 1К 6К	ズ ファイルの B セットアッ B セットアッ B セットアッ	確頼 ブ後報 ブ後報 ブ格報 ブ情報	
•							F

Removing/uninstalling device drivers (PCMCIA card, Windows 95 OSR2)

See "Removing/uninstalling device drivers (PCMCIA card, Windows 98)".

Removing/uninstalling device drivers (PCI card, Windows 95 OSR2)

See "Removing/uninstalling device drivers (PCI_card, Windows 98)".

Removing/uninstalling device drivers (PCMCIA card, Windows 95 OSR1)

With the PCMCIA card still inserted, on the **Control Panel**, double-click and open "**System**", and then click on the "**Device Manager**" tab.

Click on the "ZDIF" class, click and select "ZDIF Interface Card [PCMCIA/PC Card" that is located below it, and then click on the "Remove (E)" button.

›አታሬወን <u>ከእታ</u>	? X
情報、デバイスマネージャ ハー・ウェア環境 ハウォーマンス	
	- 11
ZDIF	
ZDIF Interface Card [PCMCIA/PC Card]	
□ □ □ □ → □ → → → → → → → → → → → → → →	
E	
□ □ □ ■ ■ ネットワーク アダプ %	
□	
क्ति ग्रि के − ト (COM / LPT)	
OK キャンセ/	L I

When the "Confirm Device Removal" dialog appears, click on the "OK" button.

デバイス削り	徐の確認	? ×
\diamond	ZDIF Interface Card [PCMCIA/PC Card]	
警告: こ	のデバイスをシステムから削除しようとしています。	
		4

If you want to completely delete the device driver information for the PCMCIA card, you should also delete the associated INF file.

To do this, start **Windows Explorer** and select "Folder Options (O) ..." in the "View (V)" menu. Double-click on the "View" tab on the "Folder Options" dialog

Remove the checkmark (off) from "Hide file extensions for known files", check off "Show all files" (on), and then click on "OK".

This displayes INF files.

オプジョン ?	×
表示] ファイル タイブ]	
7244-0表示	
○ 次の種類のファイルは隠す(T):	
隠しファイル .DLL (ダイナミックリンク ラインドラリ)	
.SYS (システム ファイル) .VXD (仮想すいイス ドライハ)	
1.386 (1)(2)(アンパイストライハワ) DRV (デンパイストライハウ)	
□ タイトルバーにファイルの <u>パン名を表示する(P)</u>	
□ 登録されているファイルの拡張子は表示しない(E)	
▼ 境界の左右に説明を表示する(2)	
OK キャンセル 更新(g)	

Use **Explorer** to open the "**Inf**" directory under the system directory (default -- "C:¥Windows"), and look for an "**OemN.inf**" file (where N denotes a numeric value 0 or greater).

🔯 エクスフローラー Inf			_ 🗆 🗡
ファイル(E) 編集(E) 表示(⊻)	ツール(T) ヘルフ [*] (H)		
すべてのフォルダ	開いているフォルタ: 'Inf		
Help	▲ <u>名前</u>	サイズ「ファイルの種類	●●
	🐻 Oem0.inf	2KB セットアッフ ^ッ 情報	97
Media	🛛 🐻 Oem1.inf	2KB セットアッフ ^ッ 情報	97
🗄 🕀 🛄 Msapps	Oem2.inf	6KB セットアッフ ^ッ 情報	01
NetHood	🐻 Perneia.inf	10KB セットアッフ ^ッ 情報	95
Pif	🔤 🐻 Poledit.inf	3KB セットアッフ ^ッ 情報	95
Recent	🔜 📓 Prtupd.inf	12KB セットアッフ ^ッ 情報	95
SendTo	🐻 Regsrv.inf	3KB セットアッフ ^ッ 情報	95
ShellNew	🐻 Rna.inf	11KB セットアッフ [*] 情報	95 💌
	▼		•
180 個のオフシシュクト	4.02MB (空き	ディスク領域: 77.7MB)	li

Open the files named "OemN.inf" (where N denotes a numeric value 0 or greater) one by one; delete any file that contains the following comment at the beginning of the file:

Ē	Oem2.inf - /托帳	_ 🗆 🗵
7:	ァイル(E) 編集(E) 検索(S) ヘルプ(H)	
;; ;; ;;	zdif.inf : ZDIF Interface Card Driver INF file (Windows 95/98)	
	Copyright (C) Lightwell Co., Ltd ZAX 1998,1999	
;;	Windows 95	•
┫		• //

Removing/uninstalling device drivers (PCI card, Windows 95 OSR1)

With the PCI card still inserted, on the **Control Panel**, double-click and open "**System**", and then click on the "**Device Manager**" tab.

Click on the "ZDIF" class, click and select "ZDIF Interface Card [PCI]" that is located below it, and then click on the "Remove (E)" button.

¹ γλτ40)7′μΛ′τ ₁
情報 デバイスマネージャ ハットウェア環境 ハフォーマンス
○ 通過即に表示(1) ○ 法結果(に表示(0))
 All biologic should be should be
1/13-9
701E Interface Cont [R01]
由のサンドにも行け、およびゲームのお相ク
⊕- <u></u>
中国 ディスク ドライフ
□
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
田 · · · · · · · · · · · · · · · · · · ·
m J x → (com / LPT)
± 5 792
🚽 🚽 🕺 🗸
OK #+/th

When the "Confirm Device Removal" dialog appears, click on the "OK" button.

デバイスト	削除の確認	7 ×
\diamond	ZDIF Interface Card (PCI)	
警告:	このディイスをシスナムから再想とようとしています。	
	<u>ок</u> ++	244

If you want to completely delete the device driver information for the PCMCIA card, you should also delete the associated INF file.

To do this, start **Windows Explorer** and select "Folder Options (O) ..." in the "View (V)" menu. Double-click on the "View" tab on the "Folder Options" dialog

Remove the checkmark (off) from "Hide file extensions for known files", check off "Show all files" (on), and then click on "OK".

This displayes INF files.

わ物2	? ×
表示 7711 2171	
771山の表示	
○ 次の種類のファイルは隠す①:	
隠しつァイル .DLL (ダイナミックリンク ライフドラリ)	
SYS (ジステム ファイル) .VXD (仮想デバイストライハ)	
1.386 (仮想アバイストライハ) DRV (デバイストライハ)	
□ タイトルバーニファイルのハ*2名奏表示する(P)	
□ 予州/// 10/110/110/110/11/0/11/0/10/0/0/0/0/	
▼ 境界の左右に説明を表示する(0)	
OK キャンオル 更新(A)	

Use **Explorer** to open the "**Inf**" directory under the system directory (default -- "C:¥Windows"), and look for an "**OemN.inf**" file (where N denotes a numeric value 0 or greater).

🔯 エクスフローラー Inf			_ 🗆 🗡
ファイル(E) 編集(E) 表示(⊻)	ツール(T) ヘルフ [*] (H)		
すべてのフォルダ	開いているフォルタ: 'lnf		
Help	▲ <u>名前</u>	サイズ「ファイルの種類	●●
	🐻 Oem0.inf	2KB セットアッフ ^ッ 情報	97
Media	🛛 🐻 Oem1.inf	2KB セットアッフ ^ッ 情報	97
🗄 🕀 🛄 Msapps	Oem2.inf	6KB セットアッフ ^ッ 情報	01
NetHood	🐻 Perneia.inf	10KB セットアッフ ^ッ 情報	95
Pif	🔤 🐻 Poledit.inf	3KB セットアッフ ^ッ 情報	95
Recent	🔜 📓 Prtupd.inf	12KB セットアッフ ^ッ 情報	95
SendTo	🐻 Regsrv.inf	3KB セットアッフ ^ッ 情報	95
ShellNew	🐻 Rna.inf	11KB セットアッフ [*] 情報	95 💌
	▼		•
180 個のオフシシュクト	4.02MB (空き	ディスク領域: 77.7MB)	li

Open the files named "OemN.inf" (where N denotes a numeric value 0 or greater) one by one; delete any file that contains the following comment at the beginning of the file:

Ē	Oem2.inf - /托帳	_ 🗆 🗵
7:	ァイル(E) 編集(E) 検索(S) ヘルプ(H)	
;; ;; ;;	zdif.inf : ZDIF Interface Card Driver INF file (Windows 95/98)	
	Copyright (C) Lightwell Co., Ltd ZAX 1998,1999	
;;	Windows 95	-
┫		• //

Removing/uninstalling device drivers (PCMCIA card, Windows NT4.0)

With the PCMCIA card still inserted, on the **Control Panel**, double-click and open "**Devices**". Then click and select "**ZDIF Interface Card Driver**".

Next, click on the "Stop (T)" button.

901/1700	狀態	スタートアップ		
ved90c24a	0.081	<u>新</u>	•	閉じる
wdvga		無効		
weitekp9		無効		Hanne (2)
WINS Client (TCP/IP)	開始合	自動		停止①
Xea		無効	80 r	75-17-75(0)
ZDIF Interface Card Driver	開始	自動	Σ-	X9=1797 \BV
キーボードシラストドライバ	間続	2274		ハートウェア プロファイル(通).
リダイレクタ	開始	手動	•	- 4 - 10.0

When the following dialog appears, click on "Yes (Y)":

デバイス	×
⚠	ZDIF Interface Card Driver デバイスを停止してもよろしいですか?
	おしい①2 次 (文 (位)

The device halts and the driver is unloaded.



On the **Control Panel**, double-click and open "Add/Remove Programs", and click on the "Install/Uninstall" tab.

Select "MJX440 ZDIF Device Driver for Windows NT" by clicking on it and click on the "Add/Remove" button.

7795-5650	追加と削除のプロパティ	? ×
インストールと前	削除 Windows NT セットアッフ°	
2	フロッピー ディスクまたは CD-ROM から新しいア インストールするには、【インストール】を列ックしてくた	フツケーションを ごさい。
		ብንスト−ルΦ
3	次のソフトウェアlは自動的に削除できます。アフツ たり、その構成ファイルを変更するには、一覧カ と削除]をワリックしてください(<u>T</u>)	りケーションを削除し いら遅んで Б追加
Microsoft Microsoft Microsoft Microsoft	t Outlook Express t Visual C++ 5.0 t Wallet <u>t Web Publishing Wizard 1.53</u> t Word 98	
RealPlay VDOLive Windows	ZDIF Device Driver for Windows NT offler er 4.0 - Player - NT 4.0 Service Pack 4	
	Ĺ	追加と削除(R)
	OK キャンセル	通用(<u>6</u>)

When the "Confirm File Deletion" dialog appears, click on "Yes (Y)".



The driver is automatically uninstalled.

Click on "OK" to exit.



Shut Windows NT4.0 down, turn off the power for the notebook PC, and then remove the PCMCIA card.

Removing/uninstalling device drivers (PCI card, Windows NT4.0)

With the PCI card still inserted, on the **Control Panel**, double-click and open "**Devices**". Then click and select "**ZDIF Interface Card Driver**".

Next, click on the "Stop (T)" button.

7	///አ				×
	テンᡊᠯᡘᡧᢧ	状態	スタートアッフ。		
	wd90c24a		無効	▲ 閉じる	1
	wdyga		無効	CT06.2%	Ξ.
	weitekp9		無効		1
	WINS Client (TCP/IP)	間始合	自動	停止①	\mathcal{V}
	Xea		無効	ab. 17.08(0)	Ξ.
	ZDIF Interface Card Driver	開始	自動	x9-1797 US	
	キーボート・クラスードライハ	開始	277 5	ハートウェア フロファイル(近).	
	リダイレウタ	開始	手動	•	Ξ.
				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	

When the following dialog appears, click on "Yes (Y)":

デバイス	×
⚠	ZDIF Interface Card Driver デバイスを停止してもよろしいですか?
	おしい①2    次 (文 (位)

The device halts and the driver is unloaded.



On the **Control Panel**, double-click and open "Add/Remove Programs", and click on the "Install/Uninstall" tab.

Select "MJX440 ZDIF Device Driver for Windows NT" by clicking on it and click on the "Add/Remove" button.

7795-50000	追加と削除のプロパティ	? ×
インストールと削	『除 Windows NT セットアッフ゜]	
	7ロッピー ディスクまたしま CD-ROM から新しし パフックケーションを インストールするにコよ、[インストール] を切ックしてください。	
	インストール Q	_
3	次のソフトウェアは自動的に削除できます。アフツケーションを削除し たり、その構成ファイルを変更するには、一覧から選んで Б追加 と削除] を夘ックしてください①	
Microsoft Microsoft Microsoft Microsoft <del>Microsoft</del>	Outlook Express Visual C++ 5.0 Wallet Web Publisbing Wizard 1.53 Word 98	
RealPlaye VDOLive Windows	2DIF Device Driver for Windows NT filer er 4.0 Player NT 4.0 Service Pack 4	
	追加と削除(R)	
	OK キャンセル 道用(A)	

When the "Confirm File Deletion" dialog appears, click on "Yes (Y)".



The driver is automatically uninstalled.

Click on "OK" to exit.



Shut Windows NT4.0 down, turn off the power for the notebook PC, and then remove the PCI card.

This chapter describes how to connect the MJX440 to the host as well as how to connect the MJX440 to the target system.

[Important] Before connecting the MJX440 to other devices, be sure to turn off the power for the devices.

# 3.1 Connecting the MJX440 to the Host

Connect the PCI or PCMCIA card installed in the host system to the HOST I/F connector of the MJX440, using a parallel interface cable.



Figure 3-1. Connecting the MJX440 to the host

[Notes] The following limitations apply due to the thickness of the connector that connects the PCMCIA cable to the card:

- Even when there are two PCMCIA card slots, only one card can be used in some cases. There are also cases where a card can be inserted only into the bottom slot.
- An attempt to force the insertion of two cards can damage the PCMCIA card slot and the PCMCIA card connector part.

# 3.2 Connecting an N-Wire Cable

Use an N-Wire cable to connect the N-Wire cable for the MJX440 to the N-Wire connector on the target system.



Figure 3-2. Connecting the N-Wire cable

[Note] To ensure the proper orientation of the connectors, make sure that the  $\triangle$  marks on the connectors match.

## 3.3 Connecting ROM Probes

ROM probes need to be connected only when a ROM in-circuit connection must be perforemed.

First, set the jumper switches on your ROM brobe board according to the type of ROM to be used. Refer to Appendix D, "ROM Probes" for details.

Next, connect all the ROM probes that are supplied in the product package to the ROM probe cables.



Figure 3–3. Connecting a ROM probe to a ROM probe cable (1)

In the next step, connect the ROM probe to the ROM socket on the target system, and connect the other end of the ROM probe cable to the ROM1/ROM2 connector on the MJX440.



Figure 3-4. Connecting a ROM probe to a ROM probe cable (2)

How to connect a ROM probe depends on the following characteristics of the target system:

- ROM data bus width
- Number of ROM chips
- ROM access bus width

In Figures 3-5-1 through 3-5-9, select the connection diagram that matches your target system and connect the ROM probes to the ROM probe cables according to the diagram.

[Note] Be sure to turn off both the MJX440 and the target system.

[Note] Be careful not to plug in the ROM probe in reverse.

[Note] Distinguish the two ROM plugs that can be connected to ROM probes J-101A and J-104A by using the silk-printed characters (JROM1 or JROM2) that can be found on the ROM probe board.

One 8-bit bus width ROM chip and an 8-bit ROM access bus width: (LED lit: ROM1)



Figure 3-5-1. Connecting a ROM probe (1)

Two 8-bit bus width ROM chips and an 8-bit ROM access bus width: (LEDs lit: ROM1, ROM2)



Figure 3-5-2. Connecting a ROM probe (2)

Four 8-bit bus width ROM chips and an 8-bit ROM access bus width: (LEDs lit: ROM1, ROM2, ROM3, ROM4)



Figure 3–5–3. Connecting a ROM probe (3)

Two 8-bit bus width ROM chips and a 16-bit ROM access bus width: (LEDs lit: ROM1, ROM2)



Figure 3-5-4. Connecting a ROM probe (4)

Four 8-bit bus width ROM chips and a 16-bit ROM access bus width: (LEDs lit: ROM1, ROM2, ROM3, ROM4)

MJX440	ROM probe		
DOM	JROM1	ROM	Low address Data bits 7–0
ROM1	JROM2	 ROM	Low address Data bits 15–8
	JROM1	ROM	High address Data bits 7–0
ROM2	JROM2	ROM	High address Data bits 15–8

Figure 3–5–5. Connecting a ROM probe (5)

Four 8-bit bus width ROM chips and a 32-bit ROM access bus width: (LEDs lit: ROM1, ROM2, ROM3, ROM4)



Figure 3–5–6. Connecting a ROM probe (6)

One 16-bit bus width ROM chip and a 16-bit ROM access bus width: (LED lit: ROM1)



Figure 3-5-7. Connecting a ROM probe (7)

Two 16-bit bus width ROM chips and a 16-bit ROM access bus width: (LEDs lit: ROM1, ROM2)



Figure 3–5–8. Connecting a ROM probe (8)

Two 16-bit bus width ROM chips and a 32-bit ROM access bus width: (LEDs lit: ROM1, ROM2)



Figure 3–5–9. Connecting a ROM probe (9)
### 3.4 Connecting an External Trigger Cable

When displaying the status of target system signals on the LED or using MJX440-output trace trigger signals as input into the logic analyzer, connect the EXTERNAL connector from the MJX440 to the target system signals, and to the logic analyzer, using an external trigger cable.

An external trigger cable needs to be connected only when any of the functions mentioned above is used.



Figure 3–5. Connecting an external trigger cable

#### Chapte 3. Connecting the Hardware

Signal	Color	I/O	Functionality
EXTIN1	Clip: yellow	TTL input	If the connected signal is at the HIGH level, the
	Cable: brown		corresponsing LED is lit.*1 For the signals
EXTIN2	Clip: yellow	TTL input	EXTIN1 and EXTIN2, the signal status is also
	Cable: red		recorded during realtime tracing.
EXTIN3	Clip: yellow	TTL input	
	Cable: orange		
EXTOUT1	Clip: red	3.3V O.D.	Generates either the LOW or HIGH level when
	Cable: brown	output ^{*2}	asserted by the XPIN command of the MJX440
EXTOUT2	Clip: red	3.3V O.D. output	command set.
	Cable: red		
TRGOUT-	Clip: green	3.3V O.D. output	Generates LOW level signals following a trace
	Cable: green		trigger. This signal can be used as trigger input
			into the logic analyzer.
GND	Clip: black		This signal is connected to the GND outlet of
	Cable: black		the target system.

Details of the signals passing through the external trigger cable are shown below, where signals are color-coded in terms of clip and cable colors:

^{*1} On the MJX440 system unit, signal names are indicated in abbreviation, e.g., EXTIN3→EXI 3.
*2 "O.D." stands for "open drain".

# 3.5 Connecting the Power Supply and Turning the Power On

Aftr connecting all cables, connect the AD cord and the AD adapter to the MJX440, making sure that the power switch for the MJX440 is off.



Turn on the devices in the following sequence:

- 1. Host
- 2. MJX440
- 3. Target system

Similarly, turn off the devices in the following sequence:

- 1. Target system
- 2. MJX440
- 3. Host

[Important] Turning the power on or off in the incorrect sequence can damage the equipment.

[Important] Do not connect or disconnect any of the devices when turning the power on.

### Chapter 4. Installing the Software

This chapter describes how to install the software for the operation of the MJX440.

- Installing MULTI + MJXSERV, MJXDEB
- Installing the MJXDEB

If you purchased Green Hills Software's integrated development environment MULTI together with MJXDEB, perform the

MULTI + MJXSERV, MJXDEB installation procedure.

When installing solely MJXDEB, perform the

MJXDEB installation

procedure.

The MULTI + MJXSERV, MJXDEB option is configured as follows:



#### MULTI + MJXSERV, MJXDEB installation

- 1. Install Green Hills Software's integrated development environment MULTI.
- Then, install the server program MJXSERV for MULTI.
   Load the CD-ROM labeled "MULTI MJXSERV + MJX440 for V831/V832 Tools Disk" in the CD-ROM drive.

Select "Start" and "Run (R)  $\ldots$  " to display the "Run" dialog.

3. In "Open (O)", specify the setup program Setup.exe (assuming that your CD-ROM drive is D: drive, specify "D:¥Setup.exe"). Click on "OK".

ファイル名き	綻して実行 ?×
2	間きたいブログラム、フォルダ、ドキュンント、またはインター ネットリソースの名前を入力してください。
名前②	D/¥Setup.exe
	OK         キャンセル         参照(回)

4. The setup program starts.



5. When the following dialog appears, click on "Next (N)>":



6. When the **"Select Destination Directory/Folder**" dialog appears, specify the destination by clicking on the **"Browse (R)...**" button.

Be sure to specify the directly in which MULTI was previously installed.

(Default directory: "C:\Green")

アプリケーションのインストール先の選択				
	セットアップ は、次のディレクトリにMULTI MJXSERV + MJX440 for V831/V832 Toolsをイバストールします。 このディレクトリヘイバストールするには、[次へ] ボタンを知っかしてく ださい。 別のディレクトリヘイバストールする場合は、[参照] ボタンを知っか しディレクトリを選択してください。 MULTI MJXSERV + MJX440 for V831/V832 Toolsをイバトール しない場合は、[キャンセル] ボタンを知っかし中断してください。			
InstallShield	インストール先ディレクトリ C:¥Green < 戻る (1) (次へ(1)) キャンセル			

Click on "Next (N) ≻".

フログラム フォルダの選択		×
	toli7-071は、次の71001% 7410/1071001% 7410を追加し ます。新しい74107名を入力するか、または既存の74101 以から違訳することもできます。し次へ14100を知っかして 続行してください。 71001% 74101(空): ■ Adobe Acrobat AutoCAD LT bow Orgnus eCos Green Hills HTHL Help Workshop Interface LHMelting HFC Samples on COROH	
InstellShield	〈 戻る ⑧ (次へ⑪ 〉 (林)地)	

7. When the "Select Program Folder" dialog appears, click on the "Next (N) >" button.

When the "Copying file" dialog appears, click on the "Next (N) >" button, which starts the intallation process.

ファイル ユピーの開始	×
Image: Provide the second sec	7°ロヴラム ファイルのコピーを開始するための情報は次の通りで す。設定内容を確認して、変更が必要な場合は[戻る] ボタンをクリックするとファイルのコピーを開始します。 現在の設定: セットアップタイプ: 全て インストール先のフォルタ [®] C:¥Green 2-ザ 情報 名前: mukai 会社名: Lightwell Co., Ltd Zax
115381511515	< 戻る(1) 「次へ(1)」 キャンセル

8. The installation finishes, displaying program folder

MJX440 for V83x Tools

that has been created.



This process installs the following files:

MJXSERV.EXE	MULTI server for MJX440 for V831/V832
MJXASM.DLL	V831/V832 assembler/disassembler library
MJXV831.DLL	V831 library
MJXV832.DLL	V832 library
MJXDEB.EXE	Quick debugger MJXDEB
MJXUSAGE.TXT	MJXDEB help file
MJX440.ICO	MJXDEB icon
MJXCVT.EXE	MJX binary file conversion program MJXCVT
MJXCFG.EXE	Configuration support tool MJXCFG (for creating configuration files)
MJXCFG.HLP	MJXCFG help file
MJXCFG.GID	"
MJXCFG.CNT	"
MSVCRT.DLL	Microsoft Visual C++ runtime library

#### **MJXDEB** installation

- Load the CD-ROM labeled "MJX440 for V831/V832 Tools Disk" in the CD-ROM drive. Select "Start" and "Run (R) ..." to display the "Run" dialog.
- In "Open (O)", specify the setup program Setup.exe (assuming that your CD-ROM drive is D: drive, specify "D:¥Setup.exe"). Click on "OK".

ファイル名参	指定して実行 学業 メ
2	聞きたいブログラム、フォルダ、ドキュメント、またはインター ネットリソースの名前を入力してください。
名前(2)	D.¥Setup.exe
	OK キャンセル 参照( <u>B</u> )

3. The setup program starts.



4. When the following dialog appears, click on "Next (N)>":



 When the "Select Destination Directory/Folder" dialog appears, specify the destination by clicking on the "Browse (R)..." button.

(Default directory: "C:¥Mjx")

アフリケーションのインストール先の	選択 🗙
	bok7の71よ、次のディレクトリにはJX440 for V831/V832 Tools をわえたしします。 このディレクトリへわえたしまするには、【次へ】おかかを知っかしてく ださしい。 別のディレクトリへれえたしする場合は、【参照】おかかを知っか しディレクトリを選択してください。 MLK440 for V831/V832 Toolsを介えたしたない場合は、 【キン時】おかかを知っかし中世所してください。
Insalishield	イ)22-11先が74/34/9 0:#Hjx < 戻る(Q (次への))): キャン14

Click on "Next (N) ≻".

6. When the "Select Program Folder" dialog appears, click on the "Next (N) >" button.



7. When the "Copying file" dialog appears, click on the "Next (N) >" button, which starts the intallation process.

ファイルコピーの開始	×
the stational	J [*] ID [*] うふ ファルのエ [*] -を開始するための情報は次の通りです。設定内容を確認して、変更が必要な場合は[戻る] ^{**} シッを勿っりします。現在の設定のままでよい場合は、[次 へ] ^{**} タンを勿っするとファルのエ [*] -を開始します。 現在の設定: しっけ ^{**} の設定のままでよい場合は、[次 へ] ^{**} タンを勿っするとファルのエ [*] -を開始します。 現在の設定: 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
Installohteid	

9. The installation finishes, displaying program folder

MJX440 for V83x Tools

that has been created.



This process installs the following files:

MJXASM.DLL	V831/V832 assembler/disassembler library
MJXV831.DLL	V831 library
MJXV832.DLL	V832 library
MJXDEB.EXE	Quick debugger MJXDEB
MJXUSAGE.TXT	MJXDEB help file
MJX440.ICO	MJXDEB icon
MJXCVT.EXE	MJX binary file conversion program MJXCVT
MJXCFG.EXE	Configuration support tool MJXCFG (for creating configuration files)
MJXCFG.HLP	MJXCFG help file
MJXCFG.GID	"
MJXCFG.CNT	"
MSVCRT.DLL	Microsoft Visual C++ runtime library

This set of files differs from the files installed under "MULTI + MJXSERV, MJXDEB installation" in that it does not include the MJXSERV.EXE file (MULTI server for MJX440 for V831/V832).

### Chapter 5. Setting the MJX440 Environment

This chapter describes how to set the environment that is necessary for the operation of the MJX440.

The environment for the MJX440 can be set by using the configuration support tool MJXCFG. After turning on all the devices, launch MJXCFG from the start menu according to the following procedures:

- 1. Start menu
- 2. Program (<u>P</u>)
- 3. MJX440 for V83X Tools
- 4. MJXCFG

ファイルを開く				?	×
ファイルの場所(!):	🔄 Green	•	<b>E</b> 💣	8-6- 8-6-	
810 850					
ansi 🗐 libsrc					
₩810 1 v810					
v830					
ファイル名( <u>N</u> ):	mjx440.ini			開(( <u>0</u> )	
ファイルの種類( <u>T</u> ):	iniファイル(*.ini)		•	キャンセル	
ファイルの種類( <u>T</u> ):	iniファイル(*.ini)		•	++>\UL	

Then, specify the configuration file in which the environmental parameters are to be stored. You should normally specify MJX440.INI.

コンフィグ設定支援ツール -CPU選択-	×
ターゲットCPU	ОК
V831 ▼ V831	キャンセル
V832	ヘルフ*( <u>H</u> )

Select the target system CPU.

コンフィグ設定支援ツール -コンフィグ設定 [V831]	×
MJX440 ROM ENV V831	
I/F カード	a second a second s
PCI	
EMM容量	
4MByte	
起動時JTAGクロック	
25MHz	テスト
OK         キャンセル         更新公	) <u>^///7*</u>

The following dialog box appears if the target CPU is V831:

Similarly, the following dialog box appears if the target CPU is V832:

コンフィグ設定支援ツールトコン	ノフィグ設定 [V	832]		×
MJX440 ROM ENV	1			
I/F カード				
PCI	•			
EMM容量				
4MByte	•			
起動時JTAGクロック				
25MHz	•			テスト
			-	
		1		
(	DK	キャンセル	更新( <u>A</u> )	<u>^</u> ∦7°

When the dialog box appears, set the appropriate fields according to the MJX440 and the target system environment to be used, and then press the OK button. See Help information for details of the fields.

Pressing the **Test** button in the MJX440 tag and the ROM tag button causes the system to test the compatibility between the fields that are set, generating an error message in the event of an error.

### Chapter 6. Starting and Terminating Software

This chapter describes how to start and terminate software for the operation of the MJX440.

[Note] Only one software program for the operation of the MJX440 can be executed at a time.

#### <u>MULTI</u>

To operate the MJX440 using MULTI, after starting the MULTI system, use the following command to remote-connect the MJXSERV. ^{*1}; the target window opens upon successful connection:

#### remote mjxserv

In this case, the MJX440.INI file is used as a configuration file. Any other configuration file should be specified explicitly. The following command, for example, uses the MJX832.INI configuration file:

#### remote mjxserv mjx832.ini

To terminate the program, enter the *quit* command:

quit

MJX440 commands can be entered from the target window when the mjx> prompt is displayed:

mjx> *pin* 

^{*1} To operate the MJX440 from a builder, specify the server name **mjxserv and press the REMOTE button**.

#### **MJXDEB**

To operate the MJX440 using MJXDEB, launch MJXDEB from the start menu by performing the following sequence of actions:

- 1. Start menu
- 2. Program (<u>P</u>)
- 3. MJX440 for V83X Tools
- 4. MJXDEB

The default configuration file used is MJX440.INI. To use any other configuration file, specify the desired configuration file in the argument. The following command, for example, uses the file MJX832.INI:

#### mjxdeb mjx832.ini

This command can be entered either from the MS-DOS prompt or by modifying the properties of the shortcut in the start menu.

#### To terminate the program, simply enter the q command:

> q

# Chapter 7. MJX440 Commands

This chapter describes how to use MJX440 commands.

MJX440 commands are commands that are supported by MJXDEB. Most of MJX440 commands can be executed from within the MULTI target window from which MJXSERV is remote-connected.

Following is a list of available MJX440 commands:

ASM	Modifies memory contents in Assembly language.
BATCH	Executes the MJX440 commands that are coded in a batch file.
BP	Displays, sets, and resets breakpoints.
CONFIG	Displays and modifies the MJX440 configuration.
DUMP	Displays memory contents.
EXAMINE	Modifies memory contents.
FILL	Fills memory contents.
GO	Executes a user program.
HELP	Displays help messages.
HISTORY	Displays the results of a realtime tracing.
INIT	Reinitializes the MJX440.
JOURNAL	Writes the results of execution of a command to a file.
LOAD	Downloads a file into memory.
MOVE	Block-transfers memory contents.
PIN	Enables/disables a pin.
PORT	Displays/modifies the contents of an I/O port.
QUIT	Terminates MJXDEB.
REGISTER	Displays/modifies the contents of a register.
STEP	Executes a user program in steps.
TRACE	Displays/sets the realtime trace mode.
UNASM	Disassembles and displays memory contents.
VERSION	Displays software version information.
XPIN	Displays/sets the status of signals serviced by an external trigger cable.

#### Abbreviation of command names

The name of a command can be shortened to any length as long as it remains distinct from all other commands.

CON	This means the same as <b>CONFIG</b> .
С	This means the same as <b>CONFIG</b> .
HE	This means the same as <b>HELP</b> .
HI	This means the same as <b>HISTORY</b> .
н	This abbreviation, unable to distinguish between $\ensuremath{HELP}$ and $\ensuremath{HISTORY}$ , is illegal.

#### Notes on using MULTI

The following command is ignored in the MULTI target window:

#### QUIT

Whenever possible, the use of the following command in the MULTI target window should be avoided:

#### GO REGISTER (For modifying a register only) STEP

Execution of these commands can compromise the compatibility between MULTI and MJXSERV. Therefore, functions such as controlling the execution of a user program or overwriting a register should be performed using a MULTI command.

# ASM

Modifies memory contents in Assembly language.

#### Format:

ASM add	r Modifies memo	ry contents	in Assembly	language,	beginning
	with address add	r.			
Arguments:					
addr	Memory change starting address (hexa	decimal)			

#### Example:

> A FFF80000	(Modifies memory contents in Assembly language, beginning
	with address 0xFFF80000.)
FFF80000 movhi 0xffff, r0, r1	
FFF80004 ori 0xfff0, r1, r1	
FFF80008 jmp [r1]	
FFF8000A nop	
FFF8000C add 15, r2	
FFF8000E	(Terminates with the carriage return.)

- Terminates when the carriage return is pressed.
- Any hexadecimal number should be preceded by an 0x. Without an 0x, the number is treated as a decimal number.
- Symbols cannot be used.
- This command does not change the contents of built-in instruction RAM.

# BATCH

Executes the MJX440 commands that are coded in a batch file.

#### Format:

BATCH file	Reads the batch file <i>file</i> line by line and executes the contents
	of the file as MJX440 commands.

#### Arguments:

*file* Name of the batch file in which MJX440 commands are coded (a text file).

#### Example:

> BAT INIT.TXT	(Executes the <b>INIT.TXT file as a b</b>	atch file.)
	(Encources the internet) the de d b	acon mon

- The BATCH command can be nested up to four nesting levels.
- The QUIT in a batch file serves to terminate the BATCH command only; it does not terminate MJXDEB.

# BP

Displays, sets, and resets breakpoints.

#### Format:

BP [A H S]	Displays a breakpoint.
BP/C <i>num</i>  * A* H* S*	Clears a breakpoint.
BP/D num * A* H* S*	Disables a breakpoint.
BP/E <i>num</i>  * A* H* S*	Enables a breakpoint.
BP/A addr[,space]	Sets an access breakpoint.
BP/H addr	Displays a hardware breakpoint.
BP/S addr	Displays a software breakpoint.

#### Arguments:

space	M is a memory space specification; I is an I/O space specification (default: M).
addr	Specifies a breakpoint address (hexadecimal).
S*	Specifies all software breakpoints.
H*	Specifies all hardware breakpoints.
A*	Specifies all access breakpoints.
*	Specifies all breakpoints.
S	Specifies a software breakpoint.
Н	Specifies a hardware breakpoint.
A	Specifies an access breakpoint.
num	Specifies a breakpoint number.

#### Exampls:

> BP	(Displays a breakpoint.)
> BP/C *	(Clears all breakpoints.)
> BP/D H*	(Disables a hardware breakpoint.)
> BP/E A*	(Enables an access breakpoint.)
> BP/A 1000	(Assigns an access breakpoint at address $0{\tt x}1000$ in memory
	space.)
> BP/A 1000,I	(Assigns an access breakpoint at address $0x1000\ {\rm in}\ {\rm I/O}$
	space.)
> BP/H 2000	(Assigns a hardware breakpoint at address 0x2000.)
> BP/S 3000	(Assigns a software breakpointat address 0x3000.)

- A maximum of 4 access breakpoints can be set.
- A maximum of 2 hardware breakpoints can be set in an instruction.
- A maximum of 128 software breakpoints can be set in an instruction.

# CONFIG

Displays and modifies the  $\mathrm{MJX440}$  configuration.

Format:					
	CONFIG		Displays the current MJX440 configuration.		
	CONFIG/	'S item=value	Assigns MJX440 configuration item <i>item</i> to <i>value</i> .		
Angument					
Argument	S.				
	item	Specifies one of the	following configuration items:		
		JCLOCK	JTAG clock		
		TOPADDR	ROM starting address		
		EPCAVAIL	Availability of EPC for displaying interrupt routine trace		
		information			
	<i>value</i> Values assigned to 12.5 or 25 JCLOCK Hexadecimal addres		onfiguration items		
			s TOPADDR		
		0 or 1	EPCAVAIL (0=disable, 1=disable) (SIC)		

#### Exampls:

> CONFIG	(Displays MJX440 configuration information.)		
> CONFIG JCLOCK=12.5	(Sets the JTAG clock at 12.5MHz.)		
> CONFIG TOPADDR=20000	(Sets the ROM starting address at 0x20000.)		
> CONFIG EPCAVAIL=0	(Do not use EPC for displaying interrupt routine trace		
	information.)		

#### Remarks:

• The EPCAVAIL option is valid only with V831.

### DUMP

Displays memory contents.

#### Format:

#### DUMP[/B|/W/|/L] [addr1,[addr2]]

Displays memory contents from addresses *addr1* through *addr2*.

#### Arguments:

/В	Specifies 8 bits.
/W	Specifies 16 bits.
/L	Specifies 32 bits.
addr1	Starting memory display address (hexadecimal)
addr2	Ending memory display address (hexadecimal)

#### Exampls:

> DUMP/B 1000	(Displays 64-byte momory starting at address $0 {\tt x1000}$ in
	increments of 8 bits.)
> DUMP/W 2000,20FF	(Dsiplays memory contents from address $0x2000\ through$
	address 0x20FF in increments of 16 bits.)
> DUMP	(Displays the continuation of the previous DUMP command.)

- Displays 64 bytes of memory contents if *addr2* is omitted.
- Displays the continuation of the previous DUMP command if *addr1* is omitted.
- If a size is omitted, the size specified in the previous command execution is applied.
- This command does not display the contents of built-in instruction RAM.

### **EXAMINE**

Modifies memory contents.

Format:

EXAMINE[/B|/W/|/L] addr

Interactively changes the memory contents beginning at address *addr*.

#### EXAMINE[/B|/W/|/L] addr=data

Changes the memory contents at address *addr* to data *data*.

#### Arguments:

/В	Specifies 8 bits.
/W	Specifies 16 bits.
/L	Specifies 32 bits.
addr	Starting memory change address (hexadecimal)
data	Memory change data (hexadecimal)

#### Exampls:

> EXAMINE/B 1000=55	(Changes the memory contents at address $0 {\tt x1000}$ to $8{\rm -bit}$	
	data 0x55.)	
> EXAMINE/W 3000=1,2,3	(Changes the memory contents starting from address $0 \mathrm{x} 3000$	
	to 16-bit data 0x0001, 0x0002, and 0x0003.)	
> EXAMINE/L 2000	(Interactively changes the memory contents starting from	
	address 0x2000.)	
00002000 00000000 11223344		
00002004 00000000 55667788		
00002008 00000000 .	(Terminates when a period is encountered.)	

- In the interactive mode, this command terminates when a period is entered.
- If a size is omitted, the size specified in the previous command execution is applied.
- This command does not change the contents of built-in instruction RAM

# FILL

Fills memory contents.

#### Format:

#### FILL[/B|/W/|/L] addr1,addr2,data

Fills the memory from address *addr1* through address *addr2* with data *data*.

#### Arguments:

/B	Specifies 8 bits.
/W	Specifies 16 bits.
/L	Specifies 32 bits.
addr1	Memory fill starting address (hexadecimal)
addr2	Memory fill ending address (hexadecimal)
data	Fill data (hexadecimal)

#### Exampls:

> FILL/B 0,3FF,FF	(Fills the memory from $0x0$ through $0x3FF$ with $8\mbox{-bit}$ data
	0xFF.)
> FILL/W 1000,1FFF,0	(Fills the memory from $0x1000\ through\ 0x1FFF$ with 16-bit
	data 0x000.)

- This command cannot fill built-in instriuction RAM.
- This command cannot fill more than 8M bytes of memory (a limit item).

# GO

Executes a user program.

#### Format:

GO [ <i>addr</i> ]	Executes a user program from address <i>addr</i>
GO [ <i>addr</i> ]	Executes a user program from address addr

#### Arguments:

<i>addr</i> User program	n starting	address	(hexadecimal)
--------------------------	------------	---------	---------------

#### Exampls:

> GO 1000	(Executes the user program starting from address 0x1000.)
> GO	(Executes a user program from the current PC.)

- This command should not be executed from within a MULTI target window.
- When the argument *addr* is omitted, the command executes the user program from the PC.
- If the program being executed by this command fails to stop at a breakpoint, it can still be stopped by pressing the space key.

# HELP

#### Displays help messages.

#### Format:

HELP	Displays a list of MJX440 commands.
HELP cmd	Displays a help message on the command <i>cmd</i> .

#### Arguments:

*cmd* MJX440 command

#### Exampls:

> HELP	(Displays a list of MJX440 commands.)
> HELP ASM	(Displays a help message on ASM commands.)

#### Remarks:

• Command help messages can also be displayed by entering the string "c ommand name ?".

> ASM ?	(Displays a help message	on ASM commands.)
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# HISTORY

Displays the results of a realtime tracing.

Format:

HISTORY	Displays a	a rang	ge of pac	cket	numbers	in which	realtim	ne trace
	results are	e stor	ed.					
HISTORY/D [ <i>start</i> [, <i>end</i> ]]	Displays	the	results	of	realtime	tracing	from	packet
	number <i>st</i>	<i>art</i> thi	rough <i>en</i>	d in	disassembl	ling.		
HISTORY/P [ <i>start</i> [, <i>end</i> ]]	Displays	the	results	of	realtime	tracing	from	packet
	number <i>st</i>	<i>art</i> thi	rough <i>en</i>	d i	n units of j	packets.		

#### Arguments:

start	Starting display packet number (decimal)
end	Ending display packet number (decimal)

#### Exampls:

> HISTORY	(Displays a range of packet numbers in which realtime trace
	results are stored.)
> HISTORY/D 0,70	(Displays the results fo realtime tracing from packet numbers
	0 through 70 in disassembling.)
> HISTORY/P -10,0	(Displays the results of realtime tracing from packet numbers
	-10 through 0 in units of packets.)

- Displays 16 packets if *end* is omitted.
- Displays thje continuation of the previous HISTORY command if *start* is omitted.

• Specify *start and end* in terms of offset values, for which the packet number 0 is the starting value. Depending on the trace conditions that are employed, the packet number 0 corresponds with the following program location point:

Begin monitor: program starting point

End monitor: program end point

Begin trigger: trace trigger point

End trigger: trace trigger point

Mid-trigger: trace trigger point

Inner trigger: trace starting trigger point

(Limitation on V831 disassembly display): Packets with undefined addresses cannot be displayed in a disassembled form even when their packet numbers are specified.

# INIT

Reinitializes the MJX440.

Format:

INIT

Reinitializes the MJX440.

Remarks:

• This command also resets the CPU.

# JOURNAL

Writes the results of execution of a command to a file.

#### Format:

JOURNAL[/A /W] file[,mode[,echo]]				
	Writes the results of command execution to file <i>file</i> .			
JOURNAL/E	Terminates file output and closes the file.			

#### Arguments:

/A	Append output specification			
/W	New output specification (default)			
file	Output file name specification			
mode	Output mode specification			
	IN	Writes commands only.		
	OUT	Writes command execution results only.		
	ALL (default)	Writes both command and command execution results.		
echo	Echo mode specifica	ation		
	OFF	No screen display of file output		
	<b>ON</b> (default)	Screen display of file output		

#### Exampls:

> JOURNAL TEST.TXT	(Writes command execution results to the TEST.TXT file.)
> JOURNAL/E	(Terminates the file output and closes the file.)
> JOURNAL/A TEST.TXT	(Appends command execution results to the TEST.TXT file.)

# LOAD

Downloads a file into memory.

Format:

LOAD file[,offset]	Downloads into memory file <i>file</i> of MJX binary ^{*1} , S-record,
	Intel hex, or COFF format.
LOAD/R <i>file</i> [, <i>offset</i> ]	Down loads into memory MJX binary file <i>file</i> through emulation
	memory.

#### Arguments:

file	File to be downloaded
offset	Offset address (default)

#### Exampls:

> LOAD PROG1.ABS	(Downloads the file PROG1.ABS into memory.)						
> LOAD PROG1.ABS,2000	(Downloads	the fil	le PR	OG1.ABS into	memo	ory.)	
> LOAD/R PROG2.MJX	(Downloads	the	file	PROG2.MJX	into	memory	through
	emulation m	emory	<i>.</i> )				

- The file format is automatically recognized.
- If a file name extension is omitted, the extension .mjx is supplied by default.
- This command cannot download a file into built-in instruction RAM.
- The LOAD/R command may not be able to download an MJX binary file correctly if the file contains records that point to emulation memory.

 $^{^{*1}}$  For a description of MJX binary files, see Chapter 8, "Rapid Downloading".

## MOVE

Block-transfers memory contents.

#### Format:

#### MOVE[/B|/W|/L] addr1,addr2,addr3

Block-transfers memory contents from addresses *addr1* through *addr2* to add ress *addr3*.

#### Arguments:

/В	Specifies 8 bits.
/W	Specifies 16 bits.
/L	Specifies 32 bits.
addr1	Source memory starting address (hexadecimal)
addr2	Source memory ending address (hexadecimal)
addr3	Destination memory address (hexadecimal)

#### Example:

> MOVE 1000,10FF,2000	(Block-transfers memory contents from the addresses 0x1000
	through 0x10FF to the address 0x2000.)

- This command cannot block transfer the contents of built-in instruction RAM.
- This command cannot block transfer memory contents exceeding 8M bytes (a limit item).

# PIN

Enables/disables a pin.

Format:		
	PIN	Displays pin enabled/disabled status.
	PIN <i>pinname</i> =EN DI	Enables or disables pin <i>pinname</i> .

#### Arguments:

pinname	(pin name); specify one of the following pins:
	INTP00
	INTP01
	INTP02
	INTP03
	INTP10
	INTP11
	INTP12
	INTP13
	NMI
	HLDRQ
	RESET
EN	Enable
DI	Disable

#### Exampls:

> PIN	(Displays the pin enabled/disabled status.)
> PIN INTP11=DI	(Disables the pin <b>INT11.)</b>

# PORT

Displays/modifies the contents of an I/O port.

#### Format:

PORT[/B /W /L] addr	Displays the contents of the I/O port at address $\mathit{addr}$ .
PORT[/B /W /L] addr=data	Converts the contents of the I/O port at ad dress $\mathit{addr}$ to data
	data.

#### Arguments:

/В	Specifies 8 bits.
/W	Specifies 16 bits.
/L	Specifies 32 bits.
addr	I/O port address (hexadecimal)
data	I/O port change data (hexadecimal)

#### Exampls:

> PORT/L 2000	(Displays the contents of the $\ensuremath{\mathrm{I/O}}$ port starting at the address
	0x2000.)
> PORT/W 1000=55	(Converts the I/O port at the address $0x1000$ to 16–bit data
	at 0x0055.)
## QUIT

Terminates MJXDEB.

Format:

QUIT

Terminates MJXDEB.

Remarks:

• The QUIT command in a batch file terminates the BATCH command only; it does not terminate MJXDEB.

## REGISTER

Displays/modifies the contents of a register.

Format:			
	RESISTE	R	Displays the contents of a register.
	RESISTE	R <i>reg=data</i>	Changes the contents of register <i>reg</i> to data <i>data</i> .
Argument	s:		
	reg	Register name specif	ication
		See Appendix G, "Li	st of Register Names".
	data	Register change data	a (hexadecimal)
Exampls:			
	> REGIST	ER	(Displays the contents of a register.)
	> REGIST	ER PC=2000	(Changes the PC to 0x2000.)

Remarks:

### STEP

Executes a user program in steps.

#### Format:

	STEP [num]		Executes a user program by <i>num</i> steps.		
Argument	s:				
	num	Step count specifica	ion (decimal; default: 1)		
Exampls:					
	> STEP		(Executes a user program by 1 step.)		
	> STEP 10		(Executes a user program by 10 steps.)		

Remarks:

### TRACE

Displays/sets the realtime trace mode.

#### Format:

TRACE	Displays all trace conditions.	
TRACE/A addr[,space]	Sets data tracing.	
TRACE/C addr	Clears data tracing.	
TRACE/C *	Clears all data tracing.	
TRACE/M <i>mode</i> [, <i>mask</i> ]	Sets the trace mode.	
TRACE/I BM[, <i>length</i> ]	Sets execution trace conditions on the begin monitor.	
TRACE/I EM	Sets execution trace conditions on the end monitor.	
TRACE/I BT, taddr	Sets execution trace conditions on the begin trigger.	
TRACE/I ET, taddr	Sets execution trace conditions on the end trigger.	
TRACE/I MT, taddr	Sets execution trace conditions on the mid trigger.	
TRACE/I IT,saddr,eaddr[, <i>leng</i> a	th]	
	Sets execution trace conditions on the inner trigger (V832 $$	
	only).	
TRACE/I DI	Suspends execution trace conditions.	
TRACE/R	Disables all trace conditions.	

#### Arguments:

addr	Access address specification for data tracing (hexadecimal)		
space	M: memory space specification; I: I/O spece specification (default: M)		
mode	Trace mode specification; specify one of the following:		
	RT	Regular mode	
	FL	Full mode	
mask	Trace cause specifi	ication; specify in hexadecimal in the following bits (default:	
	1FF0)		
	0010	Exception event	
	0020	Interrupt event	
	0040	Branching by a conditional branch instruction	
	0080	Branching by a relative PC branch instruction	
	0100	Branching by the JAL instruction	
	<b>0200</b> Branching by the RETI instruction (branch to PC)		
	0400	Branching by the RETI instruction (branch from PC)	

#### Chapter 7. MJX440 Commands

0800	Branching by register indirect branch instruction (branch to
PC)	
1000	Branching by register indirect branch instruction (branch from
PC)	

length	Tracing word length specification (decimal; default: 131072)
taddr	Tracing trigger address specification (hexadecimal)
saddr	Trace-initiating trigger address specification (hexadecimal)
eaddr	Trace-suspencing trigger address specification (hexadecimal)

#### Exampls:

> TRACE	(Displays all trace conditions.)
> TRACE/A 1000	(Sets data tracing that traces access to the address $0x1000$ .)
> TRACE/C *	(Clears all data tracing.)
> TRACE/M FL	(Sets the trace mode in the full mode.)
> TRACE/I BT,1000 (Sets execution trace conditions on the begin trigger; s	
	address of the trace trigger at 0x1000.)
> TRACE/R	(Disables all trace conditions.)

#### Remarks:

- The full trace mode FL disables the data tracing.
- The number of packets that can be stored in trace memory depends on the specific instruction that is executed.

#### Tracing range:



128K



### UNASM

Disassembles and displays memory contents.

Format:			
	UNASM [ <i>addr</i> [, <i>count</i> ]]		Displays the memory contents including <i>count</i> instructions
			starting from address <i>addr</i> , in the disassembled form.
Argument	ts:		
	addr	Disassembled displa	y memory starting address (hexadecimal)
	count	Number of disassem	bled instructions for display (decimal; default: 16)
Exampls:			
	> UNASM	1000	(Displays the memory contents including 16 instructions
			starting from the address $0x1000$ in the disassembled form.)
	> UNASM	I	(Displays the continuation of the previous UNASM command.)
Remarks:			
	<ul> <li>Disp</li> </ul>	lavs memory conte	nts including 16 instructions in the disassembled form when

- Displays memory contents including 16 instructions in the disassembled form when *count* is omitted.
- Displays the continuation of the previous UNASM command*when addr*is omitted.
- This command cannot display the contents of built-in instruction RAM in the disassembled form.

### VERSION

Displays software version information.

Format:

VERSION

Displays software version information.

## XPIN

Displays/sets the status of signals serviced by an external trigger cable.

Format:			
	XPIN		Displays the status of signals serviced by an external trigger
			cable.
	XPIN ch,	level	Sets output signal ch from the external trigger cable to <i>level</i> .
Argument	s:		
	ch	Pin specification for	external trigger cable output signals
		1	EXTOUT1
		2	EXTOUT2
	level	Output pint level sp	ecification
		0	LOW level
		1	HIGH level
Exampls:			
	> XPIN		(Displays the status of signals serviced by an external trigger
			cable.)
	> XPIN 1	,0	(Sets the external trigger cable output signal $\ensuremath{EXTOUT1}$ to the

LOW level.)

Remarks:

• The output signals are negative logic.

### Chapter 8. Rapid Downloading

This chapter describes the procedures for effecting rapid downloading.

By creaging an MJX binary file, you can rapidly download programs at the following rates:

- N-Wire cable connection: 440Kbytes/second (RAM region)
- ROM in-circuit connection: 4Mbytes/second (ROM region)

MJX binary files can be created by using the file conversion program MJXCVT, which converts S-records into an MJX binary file. A description of how to use this program, executed from the MS-DOS prompt, follows:

#### Using MJXCVT

mjxcvt [-o offset] infile [outfile]

o offset Add the offset address to the output file.
 infile Input file name
 outfile Output file name (default: *infile* with the extension .mjx)

#### Downloading an MJX binary file

The MJX binary file created by MJXCVT can be downloaded by issuing the LOAD command in the MJX440 command set:

mjx> load myfile.mjx

# Appendix A. Specifications

System unit dimensions	31mm(H) x 149mm(W) x 186mm(D)		
Weight	450g		
Power supply (AC adapter)	Input: AC100~240V 50Hz/60Hz		
	Output: DC 5V±5% 3.0A		
ROM probe cable	300mm		
External trigger cable	300mm		
Operating temperature range	0°C~35°C		
Storage temperature range	-10°C~55°C		
Ambient humidity range	30%~85%		
Compatible ROM	See Appendix D, "ROM Probes".		
Number of ROM chips	1, 2, and 4 8-bit chips; 1 and 2 16-bit chips		
Emulation memory size	4Mbytes (16Mb maximum)		
Access time	50nsec from a CS		
Interface	Parallel (PCI or PCMCIA card)		
Target interface	N-Wire connector		
	ROM socket		
Supported CPU	V831, V832		
Downloading rate	440Kbytes/sec (N-Wire),		
	4Mbytes/sec (ROM in-circuit connection)		
Supported debugger	Green Hills MULTI		
Breakpoint function	Instruction fetch x 2		
	Software x 100		
	Memory access x 4		
Trace function	Trace memory: $48bit \times 128K$		
	Trace clock: 66MHz max		
	Trace conditions: 6 sets		
	Time stamp: 32bit		
Limits	See Appendix B, "Limits on Target Systems".		

### Appendix B. Limits on Target Systems

In order to use the MJX440, be sure that your target system meets the following conditions:

- The target system is equipped with connectors in compliance with N-Wire specifications.
- The N-Wire clock (the DCK signal) is slower than the bus clock in the target system.

In order to use a target system with a ROM in-circuit connection, the target system must meet the following conditions:

- The target system is equipped with a ROM socket.
- The target system contains ROM in a bank configuration.
- If multiple ROM chips are installed, all ROM address signals in the target system are identical.

### Appendix C. N-Wire Connector

#### Pin assignment

TRCCLK	A01	B01	GND
TRCDATA0	A02	B02	GND
TRCDATA1	A03	B03	GND
TRCDATA2	A04	B04	GND
TRCDATA3	A05	B05	GND
GND	A06	B06	GND
DDI	A07	B07	GND
DCK	A08	B08	GND
DMS	A09	B09	GND
DDO	A10	B10	GND
DRST*	A11	B11	NC
NC	A12	B12	NC
NC	A13	B13	VDD

Recommended connectors

• KELCorporation, 8830E-026-170S

(straight)

- KELCorporation, 8830E-026-170L
- (right angle)

#### Recommended circuitry



Notes

- The patterns between the CPU and the N-Wire connector should be as short as possible (less than 100 mm).
- The patterns between TRCCLK/CLKOUT~TRCCLK and between DCK~DCK should be GND-shielded.
- The MJX400 uses B13 VDD solely for detecting the power supply status; therefore, it does not require any greater power capacity.

Recommended 3V buffer products:

- TI Corporation, SN74LVC541A
- Toshiba, TC74LCX541F

## Appendix D. ROM Probes

1				
ROM plug	Jumper settings	ROM size	Supported ROM	ROM maker
32pin	JMP1 1–2 shorted	128K x 8bit	HN27C101AG	Hitachi
(27010)	JMP2 2–3 shorted	(0x20000byte)	$\mu$ PD27C1001AD	NEC
			TC571000D	Toshiba
			TC571000AD	Toshiba
			TC57H1000AD	Toshiba
			M5M27C101K	Mitsubishi
			MBM27C1001-nnZ	Fujitsu
			27010	intel
			27C010	intel
			Am27C010	AMD
32pin	JMP1 1–2 shorted	256K x 8bit	μ PD27C2001D	NEC
(27020)	JMP2 1–2 shorted	(0x40000byte)	M5M27C201K	Mitsubishi
			Am27C020	AMD
32pin	JMP1 1–2 shorted	512K x 8bit	HN27C4001G	Hitachi
(27040)	JMP2 1–2 shorted	(0x80000byte)	$\mu$ PD27C4001DZ	NEC
			TC574000D	Toshiba
			TC574000DI	Toshiba
			M5M27C401K	Mitsubishi
			MBM27C4001-nnZ	Fujitsu
			27040	intel
			Am27C040	AMD
32pin	JMP1 1-2 shorted	1024K x 8bit	Am27C080	AMD
(27080)	JMP2 1-2 shorted	(0x100000byte)		
32pin	JMP1 2–3 shorted	128K x 8bit	HN27C301AG	Hitachi
(271000)	JMP2 2-3 shorted		μ PD27C1000AD	NEC
			TC571001D	Toshiba
			TC571001AD	Toshiba
			TC57H1001AD	Toshiba
			M5M27C100K	Mitsubishi
			MBM27C1000-nnZ	Fujitsu

ROM probe board J-101A jumper settings

ROM plug	Jumper settings	ROM size	Supported ROM	ROM maker
40pin	JMP1 1–2 shorted	256K x 16bit	HN27C4000G	Hitachi
(27C4000 16bit)		(0x80000byte)	Am27C400	AMD
42pin	JMP1 2–3 shorted	512K x 16bit	μ PD27C8000	NEC
(27C8000 16bit)		(0x100000byte)	Am27C800	AMD
42pin	JMP1 1-2 shorted	1024K x 16bit		
(27C16000 16bit)		(0x200000byte)		

ROM probe board J-102A jumper settings

ROM probe board J-103A jumper settings

ROM plug	Jumper settings	ROM size	Supported ROM	ROM maker
40pin	JMP1 2–3 shorted	64K x 16bit	HN27C1024HG	Hitachi
(271024)		(0x20000byte)	μ PD27C1024D	NEC
			$\mu$ PD27C1024AD	NEC
			TC57H1024D	Toshiba
			TC57H1024AD	Toshiba
			MBM27C1024-nnZ	Fujitsu
			27210	intel
			27C210	intel
			Am27C1024	AMD
40pin	JMP1 1-2 shorted	128K x 16bit	Am27C2048	AMD
(272048)		(0x40000byte)		
40pin	JMP1 1–2 shorted	256K x 16bit	HN27C4096G	Hitachi
(274096)		(0x80000byte)	HN27C4096HG	Hitachi
			HN27C4096AG	Hitachi
			HN27C4096AHG	Hitachi
			TC574096D	Toshiba
			MBM27C4096-nnZ	Fujitsu
			27240	intel
			Am27C4096	AMD

ROM plug	Jumper settings	ROM size	Supported ROM	ROM maker
40pin	JMP1 1–2 shorted	512K x 8bit	HN27C4000G	Hitachi
(27C4000 8bit)		(0x80000byte)	Am27C400	AMD
42pin	JMP1 2-3 shorted	1024K x 8bit	μ PD27C8000	NEC
(27C8000 8bit)		(0x100000byte)	Am27C800	AMD
42pin	JMP1 1-2 shorted	2048K x 8bit		
(27C16000 8bit)		(0x200000byte)		

ROM probe board J-104A jumper settings

### Appendix E. Corresponding ROM Pin Assignment

Wnn	1		29	Vee	T.
vpp	I [		32	VCC	
A16	2		31	PGM*	1
A15	3		30	NC	1
A12	4		29	A14	1
A7	5		28	A13	
A6	6		27	A8	
A5	7		26	A9	
A4	8		25	A11	
A3	9		24	OE*	
A2	10		23	A10	
A1	11		22	CE*	
A0	12		21	I/O7	
I/O0	13		20	I/O6	Ι
I/O1	14		19	I/O5	Ι
I/O2	15		18	I/O4	Ι
Vss	16		17	I/O3	
	J-101	A 2	7010		

Vpp	1	32	Vcc
A16	2	31	PGM*
A15	3	30	A17
A12	4	29	A14
A7	5	28	A13
A6	6	27	A8
A5	7	26	A9
A4	8	25	A11
A3	9	24	OE*
A2	10	23	A10
A1	11	22	CE*
A0	12	21	I/O7
I/O0	13	20	I/O6
I/O1	14	19	I/O5
I/O2	15	18	I/O4
Vss	16	17	I/O3
	J-101A 27	'020	

Vpp	1		32	Vcc
A16	2		31	A18
A15	3		30	A17
A12	4		29	A14
A7	5		28	A13
A6	6		27	A8
A5	7		26	A9
A4	8		25	A11
A3	9		24	OE*
A2	10		23	A10
A1	11		22	CE*
A0	12		21	I/O7
I/O0	13		20	I/O6
I/O1	14		19	I/O5
I/O2	15		18	I/O4
Vss	16		17	I/O3
	J-101	$1A\overline{2}$	7040	

A19	1		32	Vcc	
A16	2		31	A18	
A15	3		30	A17	
A12	4		29	A14	
A7	5		28	A13	
A6	6		27	A8	
A5	7		26	A9	
A4	8		25	A11	
A3	9		24	OE*	
A2	10		23	A10	
A1	11		22	CE*	
A0	12		21	I/07	
I/O0	13		20	I/O6	
I/01	14		19	I/O5	
I/O2	15		18	I/O4	
Vss	16		17	I/O3	
J-101A 27080					

Vpp	1	32	Vcc
OE*	2	31	PGM*
A15	3	30	NC
A12	4	29	A14
A7	5	28	A13
A6	6	27	A8
A5	7	26	A9
A4	8	25	A11
A3	9	24	A16
A2	10	23	A10
A1	11	22	CE*
A0	12	21	I/O7
I/O0	13	20	I/O6
I/O1	14	19	I/O5
I/O2	15	18	I/O4
Vss	16	17	I/O3
	J-101A	A 271000	

A17	1		40	A8
A7	2		39	A9
A6	3		38	A10
A5	4		37	A11
A4	5		36	A12
A3	6		35	A13
A2	7		34	A14
A1	8		33	A15
A0	9		32	A16
CE*	10		31	BYTE*/Vpp
Vss	11		30	Vss
OE*	12		29	I/O15/A-1
I/O0	13		28	I/O7
I/08	14		27	I/O14
I/O1	15		26	I/O6
I/O9	16		25	I/O13
I/O2	17		24	I/O5
I/O10	18		23	I/O12
I/O3	19		22	I/O4
I/O11	20		21	Vcc
	J-10	)2A/J-104	4A	
	2	27C4000		

A18	1		42	NC
A17	2		41	A8
A7	3		40	A9
A6	4		39	A10
A5	5		38	A11
A4	6		37	A12
A3	7		36	A13
A2	8		35	A14
A1	9		34	A15
A0	10		33	A16
CE*	11		32	BYTE*/Vpp
Vss	12		31	Vss
OE*	13		30	I/O15/A-1
I/O0	14		29	I/O7
I/08	15		28	I/O14
I/O1	16		27	I/O6
I/O9	17		26	I/O13
I/O2	18		25	I/O5
I/O10	19		24	I/O12
I/O3	20		23	I/O4
I/O11	21		22	Vcc
	J-102	2A/J-1	104A	
	27	'C800	00	

A18	1	42	A19			
A17	2	41	A8			
A7	3	40	A9			
A6	4	39	A10			
A5	5	38	A11			
A4	6	37	A12			
A3	7	36	A13			
A2	8	35	A14			
A1	9	34	A15			
A0	10	33	A16			
CE*	11	32	BYTE*/Vpp			
Vss	12	31	Vss			
OE*	13	30	I/O15/A-1			
I/O0	14	29	I/O7			
I/08	15	28	I/O14			
I/O1	16	27	I/O6			
I/O9	17	26	I/O13			
I/O2	18	25	I/O5			
I/O10	19	24	I/O12			
I/O3	20	23	I/O4			
I/O11	21	22	Vcc			
	J-102A/J-104A					
27C16000						

		_		
Vpp	1		40	Vcc
CE*	2		39	PGM*
I/O15	3		38	NC
I/O14	4		37	A15
I/O13	5		36	A14
I/O12	6		35	A13
I/O11	7		34	A12
I/O10	8		33	A11
I/O9	9		32	A10
I/O8	10		31	A9
Vss	11		30	Vss
I/O7	12		29	A8
I/O6	13		28	A7
I/O5	14		27	A6
I/O4	15		26	A5
I/O3	16		25	A4
I/O2	17		24	A3
I/O1	18		23	A2
I/O0	19		22	A1
OE*	20		21	A0
	J-103	3A 271	024	

Vpp	1		40	Vcc
CE*	2		39	PGM*
I/O15	3		38	A16
I/O14	4		37	A15
I/O13	5		36	A14
I/O12	6		35	A13
I/O11	7		34	A12
I/O10	8		33	A11
I/O9	9		32	A10
I/08	10		31	A9
Vss	11		30	Vss
I/O7	12		29	A8
I/O6	13		28	A7
I/O5	14		27	A6
I/O4	15		26	A5
I/O3	16		25	A4
I/O2	17		24	A3
I/O1	18		23	A2
I/O0	19		22	A1
OE*	20		21	A0
	J-10	3A 27204	<b>48</b>	

Vpp	1		40	Vcc
CE*	2		39	A17
I/O15	3		38	A16
I/O14	4		37	A15
I/O13	5		36	A14
I/O12	6		35	A13
I/O11	7		34	A12
I/O10	8		33	A11
I/O9	9		32	A10
I/08	10		31	A9
Vss	11		30	Vss
I/O7	12		29	A8
I/O6	13		28	A7
I/O5	14		27	A6
I/O4	15		26	A5
I/O3	16		25	A4
I/O2	17		24	A3
I/O1	18		23	A2
I/O0	19		22	A1
OE*	20		21	A0
	J-103	3A 27409	96	

## Appendix F. LEDs

PWR (green)	Lit when power is on
N-Wire (red)	Lit when power to N–Wire connector is on
EXI1 (red)	Lit when externl trigger cable $\ensuremath{EXTIN1}$ signal is at HIGH level
EXI2 (red)	Lit when externl trigger cable $\ensuremath{EXTIN2}$ signal is at HIGH level
EXI3 (red)	Lit when externl trigger cable EXTIN3 signal is at HIGH level $% \mathcal{A}$
ROM1 (red)	See Figures 3–5–1 through 3–5–9.
ROM2 (red)	Same as the above
ROM3 (red)	Same as the above
ROM4 (red)	Same as the above

# Appendix G. List of Registers

R0	R16	PC
R1	R17	PSW
R2	R18	EIPC
R3	R19	EIPSW
R4	R20	FEPC
R5	R21	FEPSW
R6	R22	ECR
R7	R23	PIR
R8	R24	TKCW
R9	R25	HCCW
R10	R26	
R11	R27	
R12	R28	
R13	R29	
R14	R30	
R15	R31	

### Appendix H. MJX Binary File

Binary file organization

Header	
Data	
Header	
Data	
:	
Header	
Data	
Trailing	
header	

Header (16 bytes)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
'M'	'J'	'1'	00	len1	len2	len3	00	00	00	00	adr1	adr2	adr3	adr4	00

len1: data byte length (MSB)
len2: data byte length
len3: data byte length (LSB)
adr1: logical address (MSB)
adr2: logical address
adr3: logical address
adr4: logical address (LSB)

Data (varable data byte length)

xx xx xx xx xx xx xx ···· xx xx xx xx xx
------------------------------------------

Trailing header (16 bytes)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
'M'	'J'	'1'	00	00	00	00	00	00	00	00	00	00	00	00	00

### Appendix I. Probing of the Target System





















Code	Item	PROBE POD(TYP)
tR1	CE-/OE- to Data Valid Delay	30nS
tR2	CE-/OE- to Data Float Delay	30nS
tR3	Address to Data Valid Delay	50nS





Codo	Itom	PROBE POD					
Code	Item	MIN	TYP	MAX			
tD1	DCK Clock Period		40				
tD2	DDI Valid Delay	5	12	35			
tD3	DMS Valid Delay	5	12	35			
tD4	DDO in Setup Time	20					
tD5	DDO in Hold Time	0					
tD6	DRST- Active Delay		12				



### Appendix J. Troubleshooting

#### PCMCIA card, Windows 95/98

- The notebook PC freezes when the PCMCIA card is inserted.
- Resource contention or no free resources
- A notebook PC that does not accept PCMCIA cards that do not use interrupts
- The Hardware Wizard does not start; the driver cannot be installed.
- The notebook PC fails to statt up when a PCMCIA card from another manufacturer is used simultaneously with a Lightwell card.

#### PCMCIA card, Windows NT4.0

• No free resources

#### PCI card, Windows NT4.0

• The system freezes when either MULTI or the MJXDEB debugger is started.

#### PCMCIA card, Windows 95/98

#### The notebook PC freezes when the PCMCIA card is inserted.

Some notebook PCs  *1  are known to freeze when the PCMCIA card is inserted as part of the driver installation process.

If this problem occurs, turn off the power, insert the PCMCIA card in the power-off state, and then turn the power back on.

After that, install the driver by referring to Section 2.2, "Installing a Device Driver".

^{*1} The occurrence of this problem has been confirmed with the SONY VAIO PCG-505.

#### PCMCIA card, Windows 95/98

#### Resource contention or no free resources

If a buzzar sound goes off instead of a ping sound upon completion of a PCMCIA card device driver installation process, it is an indication that the installation of the driver failed.

If this problem occurs, open "System" by double-clicking on it on the **Control Panel**, and then click on "Device Manager".

Then, click on the "ZDIF" class to display the properties of "ZDIF Interface Card [PCMCIA/PC Card]" down below (either double-click or click on "Properities (R)").

The "!" mark at the beginning of the line item indicates that there was a problem during the device driver installation process.



 $Clicking \ on \ the \ ``Resources'' \ tab \ the \ following \ display, \ at \ which \ time \ click \ on \ ``\underline{Manual \ setting \ (S)}'' \ .$ 

ZDIF Interface Card [POMOIA/PO Card]のプロパティ ? 🔀
情報「ドラハーリソース」
ZDIF Interface Card [PCMCIA/PC Card]
リソースの設定(R): 現在このデハイスは使用可能になっていないか、またはエラーがあるた め、現在リソースを使用していません。
このデバイスにリソースを割り当てるには、「手動設定」を押してください。
手動設定(S)
競合するデバイス:
×
ок <u></u> ++уъл

Confirm that "Auto setting (U)" is off (checked off) and that "Conflicting devices" shows that another device is using the resource (competing), rather than showing "No conflict".

ZDIF Interface Card [POMOIA/PC Card]のプロパティ	? ×
情報 ドチャップリソース	
ZDIF Interface Card [PCMCIA/PC Card]	
リソースの設定(B):	
リソースの種類	
	•
設定の変更の一「自動設定の	
競合するデバイス:	
I/O ボートアドレス 0260 - 027F 使用: IO read data port for ISA Plug and Play enumerator	A
ОК <b>+</b> +у/2	N I

In "Settings name (B)", select "Basic settings 000" through "Basic settings 004" in sequence.

#### If a "**Conflicting device**" indicates "**No conflict**", use that device.

This amounts to performing manual setting instead of relying on Plug & Play auto-setting, which generates a warning. This warning can be ignored.

ZDIF Interface Card [PCMCIA/PC Card]のプロパティ	? ×
情報 ドライバ リソース	
ZDIF Interface Card [PCMCIA/PC Card]	
リソースの設定(R):	
リンースの種類設定 ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━	
設定の登録名(2) 基本設定 0001 基本設定 0003 基本設定 0004	
競合するデバイス: I/O ポートアドレス 0260 - 027F 使用: IO read data port for ISA Plug and Play enumerator	<u>×</u>
OK ++	ノセル

If a conflict exists in all settings from "Basic settings 000" through "Basic settings 004", the PCMCIA card cannot be used unless the resources for other contending devices are freed.

The PCMCIA card uses one of the following resources (I/O ports):

- 0220 023F =basic settings 000
- 0260 027F = basic settings 001
- 02E0 02FF = basic settings 002
- 0320 033F = basic settings 003
- 03E0 03FF = basic settings 004

In situations where the resources (I/O ports) for contending devices cannot be modified, the PCMCIA card cannot be used.

#### PCMCIA card, Windows 95/98

#### A notebook PC that does not accept PCMCIA cards that do not use interrupts

If a buzzar sound is generated upon installation of a PCMCIA card device driver, indicating an installation failure but the problem does not fit in the **"Resource contention or no free resources"** category (no resource contention or the drive is not registered with Device Manager), try the following procedures:

Some notebook PCs *1 fail to properly recognize PCMCIA cards that do not use interrupts.

In this case, <u>install the driver</u>, and then perform an installation process where the use of interrupts by emulation is set".

First, delete the device driver by referring to Section 2.3, "Deleting/Uninstalling a Device Driver". Be sure to delete the associated INF file also.

Shut the noebook PC down and unplug the PCMCIA card.

Next, re-install the driver according to Section 2.2, "Installing a Device Driver", specifying

#### D:¥Driver¥Win9x¥ThinkPad

as the directory in which the driver file is located.

The driver file stored in this directory, while being otherwise identical to the "D:¥Driver¥Win9x" file, contains an INF file that sets the use of interrupts by the PCMCIA card by emulation.

Note that for this installation process to proceed correctly, there must be at least one free interrupt.

^{*1} This problem has been confirmed to occur in older models in the IBM ThinkPad series.
#### PCMCIA card, Windows 95/98

# The Hardware Wizard does not start up; the driver cannot be installed.

Some notebook PCs fail to recognize the PCMCIA card at all when it is inserted, causing the Haredware Wizard to fail to start up *1.

In such a case, the PCMCIA card cannot be used.

If this problem occurs in your system, please contact the Technical Support Office at Lightwell.

^{*1} This problem has been reported in conjunction with the IBM ThinkPad 380ED 2635 7AJ.

#### PCMCIA card, Windows 95/98

# The notebook PC fails to start when a Lightwell PCMCIA card is used together with a PCMCIA card made by another vendor.

Some notebook PCs fail to start when a Lightwell PCMCIA card is used in combination with a PCMCIA card made by another vendor. *1

Specifically, the following problem is known to occur:

- 1 The PC contains an installed PCMCIA card driver.
- 0 The PC contains an installed driver for the PCMCIA card made by another vendor.
- 3 The notebook PC is turned on and started with two PCMCIA cards inserted.
- 4 The notebook PC freezed during the startup process.

This problem can be avoided as follows:

- Make sure that your operating system is Windows 98.
- When starting the noebook PC, make sure that only the other PCMCIA card is inserted. Insert the Lightwell PCMCIA card after Windows 95 has started. (Sic - Windows 98 vs. 95)

^{*1} This problem has been reported to occur when the following compination of components is used:

Notebook PC:NEC PC-98NX Aile NX AL20COS:Windows 95 OSR2PCMCIA card: MelcoCorp., LAN card LPC-TX-CBLightwell, PCMCIA card

# PCMCIA card, Windows NT4.0

# No free resources

The PCMCIA card uses one of the following resources (I/O ports) if it is available:

0220 - 023F 0260 - 027F 02E0 - 02FF 0320 - 033F

03E0 – 03FF

If all these resources are being used, the PCMCIA card cannot be used unless one of them is freed and made available.

# PCI card, Windows NT4.0

# The system freezes when either MULTI or the MJXDEB debugger is started.

# In some cases, making access to the MJX440 via the PCI card after starting either MULTI or the MJXDEB debugger causes the entire system to freeze.^{*1}

# This problem can be avoided by modifying BIOS settings as follows:

- 1 Restart Windows NT4.0 and bring up the BIOS setting mode during the startup process.
- ② In the menu item for indicating whether the operating system is plug and play capable, specify "No".
- 3 Exit the BIOS setting mode to start Windows NT4.0.

^{*1} This problem has been reported to occur in the following models: NEC PC98 MateNX DA30D/S

⁺ Windows NT 4.0 (+ Service Pack3)

[TRANSLATOR'S NOTES (please delete this page after reading it)

It appears that the following items are errors in the original Japanese manual:

On p. 95, "(0=disable, 1=disable)"

On p. 149, Windows 98 vs. Windows 95

The items in question are indicated by providing "sic" notes.]