   º EIDEMAXII troubleshooting and information guide º

How to use this guide:

The index below contains some keyword information. With your text

editor, you can perform a text search for the section containing the

information you are looking for. See Part 2 for general troubleshooting

assistance.

          º Index º

Part 3 - General Information

        º Part 1 - Your EIDEMAXII package º

<EIDEMAXII product overview>

Promise Technology, Inc. introduces the world's first fully PnP 16-bit

ISA IDE port/BIOS card with the EIDEMAXII. Like its predecessor, the

EIDEMAX, the EIDEMAXII sports an external ROM BIOS which provides

standard and extended int 13 support to all drives attached to the MAX

card itself AS WELL AS any drives attached to primary (1F0h) and

secondary (170h) existing controller, be it an add-in card or built

right into the motherboard. The EIDEMAXII BIOS handles it all. One great benefit of this extensive EIDE support is for those system boards with BIOS that either do not offer extended int 13 or have bugs in their extended int 13 support. The EIDEMAXII BIOS provides a solution. What's more, with software configuration and PnP compatability, the EIDEMAXII interface card adds 2 IDE ports to the system for ATAPI devices such as CDROMS, cartridge drives, even hard drives!

<Your EIDEMAXII package includes>

 * EIDEMAXII interface card with external BIOS

 * One ATA/IDE cable (supports 2 devices)

 * Installation diskette

 * User's Manual

 * Registration card

Your installation diskette contains:

 > PNPUTIL.EXE   - EIDEMAXII PnP configuration utility

 > README.TXT   - This text document file

 > /WIN95/EIDEMAX2.INF   - Windows `95 driver .INF file

<Contacting technical support>

Promise technical support provides several support options for Promise

users to access information and updates. We encourage using one of our electronic services which provide product information updates for the most efficient service and support.

If you decide to contact us, please be sure to have the following information available before reaching a Promise support technician:

1. Product Model & Serial # (sticker on back of card, matches box)
2. BIOS and driver version numbers (check the controller BIOS banner and floppy diskette label for version information)
3. Description of the problem
4. System configuration
   > Mainboard and CPU type
   > Hard drive make/model(s)
   > Other disk controller(s)

<Technical Support sources>

Internet E-Mail support: Support@Promise.com   ** highly recommended!

PromiseOnline WWW page : http://www.promise.com/

CompuServ   : "Go Promise"

24 hour BBS 14.4,8,N,1 : (408) 452-1267

FAXBack document system: (408) 452-9160   ** call from FAX handset

FAX technical support : (408) 452-9163   ** Attn to tech support

Phone technical support: (408) 452-1180   ** M-F 7:15AM-5:00PM PST

support mailing address: Promise Technology, Inc

              Attn: Technical Support

1460 Koll Circle

San Jose, CA 95112 USA

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º Part 2 - Troubleshooting º

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<General Problem/Cause/Solution troubleshooting guide>

Problems covered here:

- Newly installed EIDEMAXII can't see the external BIOS load.

- No video display after EIDEMAXII installation/configuration.

- System does not boot after EIDEMAXII installation.

- Can't select certain port addresses for EIDEMAXII IDE ports.

- Some port addresses fail using user defined settings on the
  EIDEMAXII IDE ports.

- Drive attached to the EIDEMAXII is not recognized by the EIDEMAXII
  BIOS.

- System BIOS reports a fixed disk error or freezes up.

- Adding second drive to cable, neither can be seen.

- Existing hard drive is no longer accessible after installing
  EIDEMAXII board.

- Hard drive shows up twice in FDISK.

- Boot error message, 'NO ROM BASIC, SYSTEM HALTED.'

- The EIDEMAXII BIOS finds the new drive(s), but there are no new
  drive letter assignments.

- Windows NT does not see the EIDEMAXII card.

- Windows `95/OSR2 does not see the EIDEMAXII card.

- Windows `95 some drives using MSDOS compatability mode.

- EMM386.EXE error, 'Unable to set up page frame.'

- DOS CD-ROM driver can't find the drive attached to the port on the
  EIDEMAXII.

- Performance is low for drives on the motherboard controller.

- Windows `95 hangs when EIDEMAXII is configured for ports 1e8h/168h.

Problem : Newly installed EIDEMAXII can't see the external BIOS load.

Cause : 1> EIDEMAXII is configured for PnP, but system has no PnP

BIOS.

2> EIDEMAXII is configured for NON-PnP, external ROM has been

disabled, or address conflicts with existing device.

3> EIDEMAXII is configured for PnP, system has PnP BIOS, but

no IRQ's have been made available to the PnP/PCI system.

4> The EIDEMAXII has a jumper covering JP1.

5> There is an ATA/IDE cable connected to the EIDEMAXII with

the wrong orientation.

Solution: 1> Run the PNPUTIL setup utility and configure the EIDEMAXII

to run with PnP mode DISABLED. (More: Section 1,3)

2> Run the PNPUTIL setup utility and use the Advanced PnP

Setup menu to alter the ROM BIOS address to a new setting.

(More: Section 1)

3> In your system BIOS PnP/PCI setup utility, make sure there

is at least 1 IRQ (9--12,14,15) routed to the PnP/PCI/ICU

part of the system as opposed to Legacy/ISA.

(More: Section 3)

4> The JP1 jumper is exclusively for soft-configuration of

the card; For normal operation, remove the jumper.

5> Verify that any IDE cables attached to the EIDEMAXII are

properly oriented with the cables' red stripe towards the

pin # 1 on the IDE connector, and the same for the drive

end. (More: Section 2)

Problem : No video display after EIDEMAXII installation/configuration.

Cause : 1> The EIDEMAXII is in Non-PnP mode and the BIOS address

selected conflicts with an existing ROM address.

2> A drive is connected to the EIDEMAXII improperly.

Solution: 1> Use the safe recovery described in Section 9 to select a

different address for the ROM. (More: Section 1)

2> Verify that any IDE cables attached to the EIDEMAXII are

properly oriented with the cables' red stripe towards the

pin # 1 on the IDE connector, and the same for the drive

end. (More: Section 2)

Problem : System does not boot after EIDEMAXII installation.

Cause : 1> EIDEMAXII is set up as Non-PnP with conflicting hardware

settings.

2> Existing hard drive was set up with disk management soft-

ware or other incompatible translation system.

Solution: 1> Use the safe recovery described in Section 9 to select a

different address for the ROM and/or IDE ports.

(More: Section 1)

2> If the existing drive was an LBA drive set up without LBA

support in the system, and/or was set up using software

provided by the drive manufacturer (Disk Manager), the

EIDEMAXII BIOS will not allow the drive to be read

correctly. Although it is rare, there are a few types of

alternative LBA systems. Phoenix BIOS translation, and

'Large Disk' support may cause problems. In this situation

it is best to delay installation of the EIDEMAXII, back up

the data on the drive(s), then install the EIDEMAXII,

partition and format the drive while the MAXII BIOS is

providing the BIOS drive support services, then restore

the data from the backup to the drive. (More: Section 5)

Problem : Can't select certain port addresses for EIDEMAXII IDE ports.

Cause   : The PnP configuration utility automatically removes obvious

port conflicts from user selection.

Solution: Select one of the available addresses. Those that have been

removed are guaranteed failures. (More: Section 1,8)

Problem : Some port addresses fail using user defined settings on the

EIDEMAXII IDE ports.

Cause   : Likely due to port address conflicts with existing legacy IO

settings.

Solution: Select an alternative port address for use.

(More: Section 8)

Problem : Drive attached to the EIDEMAXII is not recognized by the

EIDEMAXII BIOS.

Cause   : 1> Improper cabling of the drive to the EIDEMAXII.

2> Master/Slave problem between devices.

3> Drive was not ready for boot.

4) Drive is attached to second port (IDE2) which is

is disabled by default.

Solution: 1> Verify the data cable and power connections to the drive.

(More: Section 2)

2> Some ATA/IDE devices do not work well with other devices.
If the connection has a master AND slave drive on it, make
sure that each device independently operates as master.
If they still fail when set as master/slave, then you must
separate the drives and run them independently as masters
on different IDE ports.

3> Some drives require longer to 'spin up' and be ready for
operation than others which prevents the drive from being
detected. Many modern system BIOSes allow you to add some
sort of 'boot delay' or 'fixed disk spin up delay' to the
boot sequence in a measure of seconds. Try allowing the
drive 5 to 15 more seconds to spin up before proceeding
with the boot. (Note: some Quantum Bigfoot drives have
been noted to take up to 12 seconds to complete the spin
up process.)

4> Use the PNPUTIL.EXE EIDEMAXII PnP Configuration Utility to
enable/configure the second port on the EIDEMAXII in order
to connect drives to it. (More: Section 1)

Problem : System BIOS reports a fixed disk error or freezes up.

Cause   : Parameters for the hard drive(s) in the system BIOS are not
correct or not supported.

Solution: As the EIDEMAXII BIOS does not require drives to be set up in
the system BIOS at all, try setting the hard drives to 'NONE'
or 'NOT INSTALLED.'

Problem : Adding second drive to cable, neither can be seen.

Cause   : Master/Slave problem between devices.

Solution: Some ATA/IDE devices do not work well with other devices. If the connection has a master AND slave drive on it, make sure that each device independently operates as master. If they still fail when set as master/slave, then separate the drives and run them independently as masters on different IDE ports. This can also be the result of improper jumper and/or cabling of the drive(s). (More: Section 2)

Problem : Existing hard drive is no longer accessible after installing EIDEMAXII board.

Cause   : Existing hard drive was set up with disk management software or other incompatible translation system.

Solution: If the existing drive was an LBA drive (528Mb or larger) set up without LBA support in the system, and/or was set up using software provided by the drive manufacturer, the EIDEMAXII BIOS will not allow the drive to be read correctly. Although it is rare, there are a few types of alternative LBA systems such as Phoenix and 'Large Disk' translation support which may cause problems also. In either case, it is best to delay installation of the EIDEMAXII, back up the data on the drive(s), then install the EIDEMAXII. After installation, partition and format the drive while the MAXII BIOS is providing the LBA BIOS support, then restore the data from backup to the drive. (More: Section 5)

Problem : Hard drive shows up twice in FDISK.

Cause   : Some system BIOSes are able to detect that the EIDEMAXII BIOS

is providing drive support as a SCSI device and

they load in their drive support after the EIDEMAXII BIOS has

already set up the drives. This yields two accessible drive

assignments.

Solution: The EIDEMAXII BIOS does not require drives to be set up in

the system BIOS at all. Try setting the hard drives to 'NONE'

or 'NOT INSTALLED' in the system BIOS. This will prevent the

system BIOS from loading support for the drives attached to

the motherboard as 'additional' devices in the system.

Problem : Boot error message, 'NO ROM BASIC, SYSTEM HALTED.'

Cause   : Hard drive has a partition on it, but no partition was set to

ACTIVE status.

Solution: Boot to diskette, run FDISK.EXE, and set the primary DOS

partition on disk 1 to be 'ACTIVE' with FDISK main menu

option # 2.

Problem : The EIDEMAXII BIOS finds the new drive(s), but there are no

new drive letter assignments.

Cause   : 1> Hard drive has no partition.

2> CD-ROM is on PnP port, not recognized by DOS driver.

3> CD-ROM is on Non-PnP port, driver is not loading.

Solution: 1> Any new hard drive requires a partition to be usable by

the operating system. Using DOS or Win `95, FDISK.EXE can

be used to create a partition. The drive must then be

formatted prior to use.

2> CD-ROM drives attached to the EIDEMAXII set up in PnP mode

will not be recognized by an MSDOS CD-ROM device driver

unless the PnP system configured the EIDEMAXII port for a

legacy port (pri, sec, ter, qua). (more: Section 3)

3> CD-ROM drivers will be able to find the drive on the ports

which are soft configured (non-PnP.) IF the driver either

automatically scans the port address which the drive is

connected to, OR the driver allows you to define the port

address to find the CD-ROM on. (More: Section 7)

Problem : Windows NT does not see the EIDEMAXII card.

Cause   : EIDEMAXII is in PnP mode and Win NT is not a PnP O/S.

Solution: Set the EIDEMAXII for non-PnP mode and use the legacy address

settings in order to allow the Win NT ATAPI.SYS driver to

find the port (pri, sec, ter, qua.) (More: Section 3)

Problem : Windows `95/OSR2 does not see the EIDEMAXII card.

Cause   : The EIDEMAXII is in non-PnP mode and is not automatically

detectable by Win `95.

Solution: Follow the advanced Win `95 driver install procedure.

(More: Section 6)

Problem : In Windows `95 some drives are using MSDOS compatability

mode.

Cause   : 1> The EIDEMAXII is in non-PnP mode and no 32-bit driver has

been loaded for it yet.

2> The Standard IDE/ESDI driver provided by Windows `95 does

not work for drives on ports 1e8h and 168h which have

existing int 13h support (provided by the EIDEMAXII BIOS.)

Solution: 1> Follow the advanced win `95 driver install procedure.

(More: Section 6)

2> You must use an alternate port address for the EIDEMAXII

other than 1e8h and 168h and set the EIDEMAXII driver

configuration accordingly. (More: Section 6)

Problem : EMM386.EXE error, 'Unable to set up page frame.'

Cause   : The EIDEMAXII BIOS is using the segment address for the ROM

previously used by the EMM386.EXE driver for the pageframe

segment.

Solution: If the EIDEMAXII is in non-PnP mode, simply select a new ROM

address for the card to use. Otherwise, you must use command

parameters for EMM386.EXE inside the CONFIG.SYS file to alter

the pageframe segment address. See your MSDOS documentation

for assistance and/or your specific memory manager optim-

ization software.

Problem : DOS CD-ROM driver can't find the drive attached to the port on

the EIDEMAXII.

Cause   : CD-ROM is on Non-PnP port, driver is not loading.

Solution: CD-ROM drivers will be able to find the drive on the ports

which are softconfigured (non-pnp) IF the driver either

automatically scans the port address which the drive is

connected to, OR the driver allows you to define the port

address to find the CD-ROM on. (More: Section 7)

Problem : Performance is low for drives on the motherboard controller.

Cause   : This release of the EIDEMAXII does not program the onboard

chipset for drive timing.

Solution: To enable best performance drive timing, set up the drives

correctly in the system BIOS. The BIOS will program the

chipset timing, then the EIDEMAXII will take over the drive

functionality.

Problem : Windows `95 hangs when EIDEMAXII is configured for ports

1e8h/168h.

Cause   : The Standard IDE/ESDI driver provided by Windows `95 does not

work for drives on ports 1e8h and 168h which have existing

int 13h support (provided by the EIDEMAXII BIOS.)

Solution: You must use an alternate port address for the EIDEMAXII

other than 1e8h and 168h and set the EIDEMAXII driver config-

uration accordingly. (More: Section 6)

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º Part 3 - Down-to-the-bone Information º

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<Section 1: Jumperless Software Configuration>

Jumperless software configuration is a terrific advantage which the
EIDEMAXII offers over many PnP add-in boards. The EIDEMAXII ISA PnP
Configuration Utility allows users of NON-PnP computer systems to
configure the card manually for use. This means the EIDEMAXII will
work on 486 and even older ISA systems. (Note: the PNPUTIL.EXE
program requires a minimum of 386 to execute.) PNPUTIL allows the
configuration of multiple EIDEMAXII cards in the system. The utility
is able to independently enable/disable each of the two IDE ports
while PnP mode is ENABLED. The ports' resources can each be modified
for the base address and IRQ with PnP mode DISABLED. Also with PnP mode
DISABLED, the external ROM address may be modified as well as disabled.
The EIDEMAXII PnP Configuration Utility is also built right into the
EIDEMAXII BIOS. It can be entered by pressing [F2] during the EIDEMAXII
BIOS initialization phase.

Promise recommends using the standard I/O port settings (Primary 1F0h,
secondary 170h, tertiary 1E8h, and quaternary 168h), however it is
possible to select a user-defined port address in the event that these
are already taken. It is important to know the I/O resource usage of
all other devices in the system in order to prevent possible conflict.
Such devices to keep in mind include LPT, COM and Floppy/Tape drive
ports, adlib, midi and other sound/multimedia cards, etc. Bear in mind
that the IDE port uses more than just a base port address. Ex:

1F0-1f7h, 3F6h (Primary); 170-177h,376h (Secondary)

The IDE port uses 8 consecutive I/O ports as well as an

'alternate status port' which is located at baseaddress+206h. As above,

1F0h+206h=3F6h (ONLY applies to PnP DISABLED mode.) Stepping through

the port addresses selectable, there are some noticeable gaps in the

I/O ranges available. Promise has opted to REMOVE

obvious conflicting addresses with existing VGA CRTC and floppy disk

controller ports. Conflicting addresses may result in the system not

booting, no video, and/or system BIOS beep codes, or simply a hardware

failure down the road which was not at first evident. So it pays to

exercise extreme caution when selecting the port address manually.

Options:

base I/O selection   : 108h..1F0h (excluding 1C0h,1C8h,1D0h,1D8h,1F8h)

IRQ selections   : 9..15 (excluding 13)

ROM address selections: D000h..DC00h (16KB)

Note: be sure to RESET the PC after saving changes so that changes will

take effect. CTLR-ALT-DEL will not always reset the card. It is best to

cycle the power or hit the reset switch.

Although the EIDEMAXII BIOS will be able to identify and operate hard

drives on the EIDEMAXII ports which have been manually configured,

other devices such as CD-ROM or other drives may not be recognized by

the system without an O/S specific driver loaded. Even so, many drivers

provided by the hardware vendor do not allow selection of port

addresses beyond the legacy addresses (Pri, Sec, Ter, Qua). Windows 95

WILL allow user defined ports to be used, however NT, OS/2 and DOS will

NOT. For this reason, placement of the drive connections in the system is important.

<Section 2: Cabling and connections>

For anyone unfamiliar with ATA/EIDE devices, IDE drives may be paired on a single cable to a single controller port. Having two ports means four IDE hard drives may be connected. Unlike floppy disks, there is no special 'twist' in the cable or anything to differentiate the two drives connected, instead there are jumpers on the drives. Typically IDE drives have a few types of settings: "single", "master", "slave" and "cableselect." We are not interested in any drives jumped as "cableselect." If a drive is connected by itself on a port with no other drive on the cable, then it must be set as "single" if the drive has this option, otherwise it must be "master." If there are two drives on a port (on the same cable), then one drive must be set as "master", the other as "slave." It should be noted that drive letter assignments are given FIRST to the "master" drive, and SECOND to the "slave" drive. Please refer to material that came with your drives for information on how to change these jumper settings, as each is unique. When cabling drives, it is important to get the cable orientation correct. Today, virtually ALL IDE/ATA cables have a red stripe or 'dashed' edge down the length of one side of the cable. This line is to help insure that the same side of the cable get connected to the pin # 1 of the IDE connector AND the drive(s). Holding the EIDEMAXII with the connectors

facing you, the mounting bracket on the right, the pin # 1 of BOTH IDE connectors lies to the LEFT. On drives, a general rule of thumb is that the pin # 1 is closest to the POWER connection of the drive. However this is not true 100% of the time so be sure to consult your drive documentation.

There are many different installation models for the EIDEMAXII. We hope we can cover these well enough to recommend a model suitable for your system. Most systems will already have an existing IDE controller of some type. This could be an add-in board or one built on to the motherboard ("onboard"). The EIDEMAXII BIOS handles hard drives no matter whether they are connected to the EIDEMAXII or to the original controller, Promise recommends leaving the existing controller/drives connected as they are. EIDEMAXII is a 16-bit ISA card. Chances are the original controller in the system is 32-bit or better, so performance on this controller would be greater than on the port of the EIDEMAXII. Most users will be installing the EIDEMAXII for one of the following reasons:

Installation Models:

*A Installing a new high-capacity hard drive, needs BIOS support

*B Installing a CD-ROM or other drive, needs another IDE I/O port

Under Installation Model "A", as previously stated, it is best to attach hard drives to the existing controller for higher performance. If there is a CD-ROM or other slower access device running from the existing controller, these devices may be re-connected to the EIDEMAXII ports in order to leave openings for faster access hard drives on the existing controller. For those systems which already have 2 or 4 hard

drives running from the existing controller with no open positions (master/slave) for new devices, it will be necessary to run drives from the EIDEMAXII ports. Bear in mind that the EIDEMAXII is a 16-bit ISA controller and hard drives attached will have lower performance. It would be best (in interest of performance) to run the slowest drive(s) in the system from the EIDEMAXII card.

Under Installation Model "B", installation is simple. Basically attach the new CD-ROM or other ATAPI compatible drive to the EIDEMAXII. O/S drivers must be provided by the drive or O/S manufacturers.

Note: The EIDEMAXII card default settings disable the IDE2 port. It is easiest to utilize the IDE1 port connection first and, if needed, the IDE2 port can be enabled. It is disabled by default in order to reduce resource usage on a system which may not need more than one port added.

<Section 3: To Be or Not to Be PnP>

How do I know if my system has PnP ISA BIOS extensions?

Good question. Most systems show off their PnP capabilities in some form. You can look in the user manual of your system board for some mention of PnP compatability. You can also watch the messages during the system boot. Most PnP systems will say something like 'Initializing PnP cards... PnP init complete.' One last place to check if you're

still unsure is inside the motherboard system BIOS setup. Check the menus for any mention of PnP/PCI setup information. (note: It has to mention "PnP", not just "PCI setup"!)

The EIDEMAXII controller comes with default settings enabling full PnP mode. This configuration is ideal for users of:

*A PnP Motherboard/computer system BIOS, AND
*B Windows `95 or other PnP operating system (O/S)

If either condition does not apply to your setup, then configuration changes may be needed depending on the EIDEMAXII's usage in the system. First, if you require the hard drive handling capabilities of the EIDEMAXII BIOS but your system does not provide PnP BIOS extensions, then you must disable PnP mode for the EIDEMAXII with the PNPUTIL setup utility. Additionally, if you would like to run ATAPI devices (such as CD-ROM drives, etc) from the EIDEMAXII controller ports but do not run a PnP O/S (ie: dos6.22, Windows NT 4.0 and earlier, etc..), PnP mode must also be disabled. Please see the section above on using the PNPUTIL.EXE configuration utility for info on disabling EIDEMAXII's PnP mode as well as custom programming your IDE port connections.

If the conditions apply where you do run a PnP system BIOS and PnP O/S, then there should be no problem running the EIDEMAXII in its default configuration. (Please note that the IDE2 port is disabled by default even in PnP mode. If the IDE2 port is required for use, then it must be specifically enabled with the EIDEMAXII PnP configuration utility.)

<Section 4: System BIOS hazards>

There are some potential obstacles when configuring the
EIDEMAXII to run on a PnP aware system BIOS. Whether the card has PnP
mode enabled OR disabled, the system PnP/PCI settings could prevent the
card from functioning. Here we will show some scenarios, possible fixes
and symptoms. The main killer is the system BIOS' ability to 'reroute'
IRQ's to/from ISA/PCI bus lines. EIDEMAXII requires IRQ's to be routed
to it in order for the drives to function but the BIOS may not allocate
the necessary IRQ(s). This is a feature many system BIOS vendors such as
AMI, Award Software and Phoenix Technologies have chosen to implement in
order to allocate non-conflicting resources to PnP/PCI I/O devices.

If the EIDEMAXII PnP mode is ENABLED, then the system BIOS PnP/PCI
setup must have at least one IRQ (9-12,14,15) available to the PnP/PCI
system. The default IRQ for IDE1 being 11 should be made so that it is
available if not already. Some other IRQ will suffice if IRQ 11 is in
use (must be one of the optional IRQs supported by the EIDEMAXII.)

If the EIDEMAXII PnP mode is DISABLED, then the EIDEMAXII "preferred"
IRQ (11) or one of the optional IRQs which the EIDEMAXII port is
configured for must be specifically "routed" to the ISA/Legacy bus
system.

Another PnP consideration for the system BIOS is the 'PnP configuration
mode.' This one could be a bit tough to find. The 'PnP configuration

mode' may affect other options displayed such as IRQ routing, etc.. It is generally an item within the PnP/PCI setup menu which allows selection of Setup Utility, ICU (ISA Configuration Utility), and sometimes references a PnP or non-PnP O/S. This item should usually be set to 'ICU' for systems which have the EIDEMAXII configured with PnP mode ENABLED. Use 'Setup Utility' if PnP mode is DISABLED.

Improper IRQ routing may result in a number of conditions, but always will prevent access to the drive(s) attached. When in PnP ENABLED mode, IRQ resources missing from the system BIOS may not only cause problems accessing the drive(s), but may prevent the EIDEMAXII BIOS from loading at all. With PnP mode enabled, the BIOS not appearing is a good pointer to look to system BIOS PnP/PCI setup. If the EIDEMAXII BIOS does load while PnP mode is enabled but does not find any drives attached to the EIDEMAXII card, then it is likely that the system BIOS was unable to allocate resources for the EIDEMAXII card. Again, check the PnP/PCI setup IRQ routing in the system BIOS to correct.

The problem is slightly less obvious when running the EIDEMAXII with PnP mode DISABLED. In this case, you will see the BIOS and you will also see drives attached to the EIDEMAXII detected including the IRQ, but they still don't function. This is still an IRQ problem. The EIDEMAXII BIOS can READ the IRQ from the card without actually using it. If the IRQ is not routed to the ISA bus correctly, it cannot be used. Go to the PnP/PCI setup and make sure the exact IRQ that the EIDEMAXII is using is specifically 'routed' to the ISA/Legacy bus.

Now we move to drive type settings. Since the dawn of the 8086, the system BIOS manufacturers have implemented drive type settings in some

shape or form for the user to tinker with. Drive type settings are definitions telling the system exactly what type of hard drives and floppy disks are attached to their controllers if they are incapable of figuring it out for themselves. Today's PC's have gotten much better at automatically identifying the drives attached to them fairly reliably. However many systems (particularly older ones) still require that the user enters this information manually.

Generally drives attached to the EIDEMAXII do not need to be reflected in the system BIOS drive types. The only exception where drives on the EIDEMAXII IDE ports "could" be defined in the system BIOS is if the port(s) on the card were set to the primary/secondary configurations. We emphasize "could" since the EIDEMAXII BIOS does not require drive information to be entered into the system BIOS. However, some system BIOS may actually require the data, so it should be entered if required. Otherwise this part of the setup can be ignored as far as the EIDEMAXII is concerned. If there ARE drives defined in the system BIOS this data MUST be correct to prevent boot errors. Refer to the hard drive documentation (sometimes on the label of the drive as well) for information about the drive geometry data to be entered. Briefly, most system BIOSes provide spaces for defining either 2 or 4 hard drives. Two hard drives means the BIOS only supports the primary controller, 4 means it handles both primary and secondary. The 4 drives are listed in order. They represent the primary master, then slave, the secondary master, then slave.

One of the functions of the EIDEMAXII BIOS is to handle extended int 13 support for large capacity hard drives on system boards which do not provide extended int 13 or provide it as the systems that improperly

support it. If you are the owner of a system which seems to freeze or crash when the large drive is set up in the system BIOS with a new EIDEMAXII controller, it is possible to declare the drive as simply 'NOT INSTALLED' or 'NONE' in the system BIOS. This should prevent the original BIOS from introducing problems during boot time, and the EIDEMAXII BIOS will detect the drive and automatically provide support for it.

<Section 5: Disk management software: the bane of BIOS translation>

If you have drives running currently with some sort of disk manager, software which allows you to access capacity of the drive greater than 504MB without the need of hardware upgrades, do NOT install the EIDEMAXII with intelligent BIOS. Disk Manager software provides 'LBA drive translation', so does the EIDEMAXII BIOS. Consequently, with the EIDEMAXII BIOS loaded at the same time as the management software, the drive may have data become inaccessible due to 'double translation'. Please refer to the literature which came with your hard drive for information on data backup and removal of disk management software prior to installing the EIDEMAXII. If you have a brand new drive, do NOT install the disk management software. The EIDEMAXII BIOS will fully handle the drive without it.

< Section 6: Win `95/OSR2 driver install>

Driver installation is automatic for Windows `95 with the EIDEMAXII configured for PnP mode. This section will cover manual installation of the driver for EIDEMAXII with PnP mode DISABLED. Before installing the driver, Promise recommends recording the base address and IRQ settings of the EIDEMAXII using the PnP Configuration Utility. (More: Section 1)

To install the driver:

1> Go to the 'Add New Hardware Wizard' in 'Control Panel.'

2> After clicking the 'Next' button, Windows `95 will prompt you if you would like Win `95 to auto-detect new hardware. Select 'No' then click 'Next.'

3> To 'select the type of hardware you want to install', select 'Hard disk controllers' from the 'Hardware types' listing, then click on the 'Next' button.

4> Windows `95 will look for information about Manufacturer/Model. Click on the 'Have Disk...' button at the bottom of the window.

5> Insert the EIDEMAXII setup diskette into the 'A:' drive. In the box 'Copy manufacturer's files from:', type 'A:\WIN95\', then click the 'OK' button.

6> Select the 'EIDEMAXII Controller' from the next window and click on

the 'Next' button.

7> Windows `95 will require access to the Win `95 installation files

to copy the 'Standard IDE/ESDI' driver. Insert any Windows `95

install disks as prompted.

8> When asked if you would like to restart your system now, select the

'No.'

9> The driver will need to be set up for the correct I/O settings.

Right click on the 'My Computer' icon on the desktop and select

'Properties' from the drop-down menu. Select the 'Device Manager'

tab at the top of the window.

10> Open the 'Hard disk controllers' listing and select the 'EIDEMAXII

controller'. Click the 'Properties' button.

11> In the 'EIDEMAXII Controller Properties' window select the tab

'Resources.'

12> If the 'Use automatic settings' box is checked, uncheck it. Select

'Input/Output Range' and click on the 'Change Setting...' button.

13> Type in the correct port address for the EIDEMAXII IDE port as

previously recorded from the PnP Configuration Utility. Ex:

If the EIDEMAXII port is on 110h, use:

Value: 0110 - 0117

(More: Section 8)

Choose the 'OK' button when complete.

14> Next select the 'Interrupt Request' from the 'EIDEMAXII controller Properties' resources window and click on the 'Change Setting...' button.

15> Type in the correct IRQ number for the EIDEMAXII IDE port as previously recorded from the PnP Configuration Utility. Ex:

If the EIDEMAXII port is using IRQ 11, use:

Value: 11

Choose the 'OK' button when complete.

16> Now click the 'OK' button on the 'EIDEMAXII Controller Properties' window.

17> Manual driver installation is complete and you are now ready to restart Windows `95.

There are some special considerations when using the Windows `95 default Standard IDE/ESDI driver which is what the EIDEMAXII Controller driver loads. Specifically, the standard driver is incapable of loading

correctly for drives supported by the EIDEMAXII BIOS that are connected to port addresses 168h (Quaternary) and 1E8h (Tertiary). If your EIDE-MAXII is configured for either port address with the EIDEMAXII BIOS enabled and running, the driver load will fail. This may cause the system to hang if the drive attached to the EIDEMAXII is the boot drive, or simply not load the driver correctly if the drive is a data drive.

Currently the only way around this problem is to change the port I/O address of the EIDEMAXII to a custom address such as 110h or 120h, etc. Using a custom port address and setting the EIDEMAXII Controller driver to this address will allow the driver to load correctly and run the file system in 32-bit mode.

<Section 7: As few words about DOS as possible>

Attaching hard drives to the EIDEMAXII with the MAXII BIOS enabled will not present a problem using DOS 6.22 and below as well as DOS 7.0 from Win `95. However if there are other devices such as CD-ROM or other removable media/ATAPI, vendor supplied drivers will be required to access them. Many CD-ROM drivers are okay to handle at least the standard legacy addresses for primary, secondary, tertiary, and quaternary, but when you get into plug n' play (address may vary) or user defined port addresses, the driver will not be able to find the device. Note that some (but very few) drivers allow custom port address

definitions with use of command line parameters. Even those drivers

that do support tertiary/quaternary addresses, may not do so automatic-

ally. This requires some sort of command parameter specifying the

address at which it should find a drive. Ex:

device=c:\drivers\CD-ROM\yourcd.sys /p:138 /i:11 /n:1

The above is an example of command parameter syntax telling your CD

driver to find one drive located at port 1e8h, irq 11. Syntax varies

per driver/vendor, so be sure to consult the literature which accomp-

anies the device for the correct command parameters.

<Section 8: For your reference>

Legacy Addresses

Primary   - I/O: 01F0h-01F7h, 03F6h IRQ: 14

Secondary   - I/O: 0170h-0177h, 0376h IRQ: 15

Tertiary   - I/O: 01E8h-01EFh, 03EEh IRQ: 11

Quaternary   - I/O: 0168h-016Fh, 036Eh IRQ: 10

Note that each port has 2 sets of I/O. The first range of 8 ports is

the base/taskfile registers. The second is the 'alternate status'

register used for receiving status about the drive without inter-

rupting.

Non-Legacy Addresses

For non-PnP programmed cards, the alternate status port address is
calculated by adding 206h to the base address. (The windows `95 desktop
calculator in scientific mode allows HEX calculations if needed.) It is
this alternate status port address that you must be most cautious about
when selecting user defined port addresses. This address may be to
close to other legacy port devices and may conflict. Ex: base=01F8h,
alt=03FEh conflicts with 3F8h COM1 address. base=01B0h, alt= 3B6h
conflicts with ATI Mach 64. For windows `95 users, pull up the 'system
properties' (right click My Computer icon and select properties. Select
the 'device manager' tab, highlight the first item, 'computer' and
click the 'properties' button. Under computer properties, check the
'input/output' bubble for a listing of all unavailable I/O addresses in
the system. This will give you a good idea where a safe address would
be to locate the user defined port.

<Section 9: Safe recovery>

Despite the precautions mentioned in this guide, it is possible to
program the EIDEMAXII in such a way that it may become inaccessible or
cause the system to be unable to boot when installed. This is due to
the extremely flexible programming capabilities of the card and is why
caution is warranted when manually selecting settings with PnP mode

disabled. For safe recovery in such situation, Promise has provided a single jumper switch (JP1) on the card. When closed, this jumper effectively disables the EIDEMAXII controller chip from interfering with system operation. At the same time it allows the EIDEMAXII to be programmed with the soft PNPUTIL program. This makes it possible to select new settings which do not conflict with other system devices.

For safe recovery, power down the system, place a jumper over JP1 so that it is 'closed', replace the card, and boot. Run the PNPUTIL program provided on the EIDEMAXII installation diskette.
(More: Section 1)

Since the EIDEMAXII controller chip is disabled when the JP1 jumper is in its closed position, the PNPUTIL program will not be able to 'find' an EIDEMAXII controller. This is normal. The program instead provides a 'Virtual Card' which can be configured with the necessary settings. The settings can be saved to the card upon exiting the PnP Utility.

Power down the system, remove the JP1 jumper from the EIDEMAXII so that it is 'open.' Replace the card, and boot as normal (provided that the new settings programmed do not conflict or cause a similar problem.)

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