General hints

BEETLE systems are delivered with a pre installed operating system and therefore do not need any download of driver for proper function of the hardware. For customers with special project definition - without PRE installed software - we provide the drivers on our web site. Here you find lots of hints regarding the installation of these drivers.

Since we have used these driver releases provided on our download site for WN internal qualification, we strongly recommend to download and install exactly these versions, even if newer ones are distributed from original hardware manufacturers.

Since some of our pilot customers receive the hardware before any manual / handbook is available this document also provides basic technical information about:

> Hardware (new features and differences to previous releases) + firmware update and settings + hardware setup + related peripherals.

For further details see also OEM web site…

→ **All information given in this document is related to hardware, firmware and software used while WN internal qualification and may change with newer releases of such components!**

This document is made for people with technical knowledge. Thus, we won't tell you how to …install a Windows driver and select INF files ("install from a list"), …overwrite existing, "recommended" Windows drivers, …install Linux rpm packages, …create a new Linux kernel, ...etc. For such basic information & education concerning operating systems and PC technology itself, please contact your favorite consultant or related books.

Contents of this document

Introduction

The RAID controller TX2650 is a PCI express X1 card which provides two SATA channels. These channels can be configured as 2 disks, as just a bunch of disks (JBOD), as RAID0 or as RAID1 which is the mean application for BEETLE systems.

PCI express riser cards are available for BEETLE with WN F1/F2, G1imp and newer motherboard.

Important! The actual G1imp BIOS release 01/01 does not support the TX-2650!

Hardware and firmware

The controller and the according software were qualified by WN using the PROMISE firmware release 2.8.0.0032 delivered with controller, included in DOWNLOAD.ZIP archive and also available from PROMISE web site. Compatibility with all WN released hard disks and WN POS motherboards can only be guaranteed with this specific firmware!

The configuration of RAID can be done by the controller firmware, **press CRTL-F rapidly**, when offered for a second.

PROMISE describes the **staged spin up** feature of FastTrak controllers on their web site! This feature works only in PROMISE RAID cages! It is not supported on BEETLE hardware.

If RAID is used, there are two hard disks present and therefore two HD power cables needed. You need to order an additional HD power **y-power-cable** for BEETLE with internal powered USB hub - connected to such a power cable, too.

Driver

Windows driver installation

Driver release 1.1.0.35 is required for proper function! Different releases are not recommended – we could see failures with previous driver releases while WN internal qualification and newer drivers were not tested yet!

If you want to boot Windows from RAID, the driver already needs to be included in Windows XP OEM installation itself. While boot from CD, **always press F6 when asked**! If you do not, Windows installer will not detect the RAID storage. Even if PROMISE driver **FTT3.SYS** seems to be loaded automatically (as shown on screen), it will not be used afterwards!

Since WN F1/F2, G1i and newer WN motherboards do not support legacy FD drive, you need to use external USB FD drive.

Do not remove USB floppy disk (FD) from drive before installation is fully completed, Windows will ask for driver floppy after formatting disks. Once removed, USB FD will never be detected anymore by BIOS and Windows installer, too.

Even if already used in a RAID1 array, you can boot Windows XP from the disk at onboard SATA ports of BEETLE motherboard! **Windows falls back to legacy hard disk driver** and boots from IDE controller on motherboard. Note! Afterwards, Windows never boots over RAID controller anymore!

Note! The driver is not signed.

Windows driver features and restrictions

The controller does not perform mirror actions by its firmware! If the **PROMISE RAID driver** is not running or system is in “stand by” or “hibernation” mode, RAID1 mirroring will not be performed until system returned to running state.

If the management tool (WebPAM service) is not installed or started, no event logs are created. **The driver itself does not create event logs.**

All controller state change is indicated and performed on data access only! This means, if no data was written to controller after RAID1 became corrupted, then **mirroring is not automatically initiated** even if the bad disk is already replaced by a good one and system is rebooted. All disks are reported as “functional” until next write access will be performed! Especially if RAID1 is not the boot media, you can see this confusing behaviour when removing a disk in your lab environment! In real life, disks are constantly used and mirroring will be started soon.

Linux driver

Current and tested driver for Linux (Kernel 2.6) is 1.1.0.12.

The source for the kernel module can be found in the archive
FT TX4650-2650 Linux Kernl 2.6 PSC v1.1.0.12.tgz.

A driver disk might be required to install the Linux system if the distribution does not support the Raid controller natively. Such a driver disk for Fedora Core 4 (Kernel 2.6.11-1.1369_FC4) can be found in the file FC4 Driver Disk files 1.1.0.12.zip. You might modify the driver disk (module.cgz) if you have a different kernel or Linux distribution.

Controller management

WebPAM is a JAVA based service provided by PROMISE, which manages the controller. You can configure the RAID, see alarms, see status dialogs on desktop, receive alarm messages over network, etc…

It does not support communication with LANdesk / BEETLEview environment.

Since it is based on JAVA all features are available with Windows and Linux!
The Windows release tested by WN is 2.2.0.67.

The Linux release of WebPAM we tested is 2.2.0.67 (Recommended installation command: ./WebPAM_2_2_0_67_lin.bin –i silent).

The Linux source code folder contains the management sources and driver libs.

Cooperation with other JAVA applications

It uses lots of JAVA default settings! For example, WebPAM listens on the **default port 1099 for** Remote Method Invocation (RMI). If another JAVA application is fixed to this port, it may cause conflicts in case of WebPAM starts before such application.
You can disable RMI by adding to folder:
[WebPAM installation folder]\jetty\extra\win32
a file named carol.properties with the following contents:

```
carol.start.ns=false
carol.start.jndi=false
carol.protocols=jrmp
carol.start.rmi=false
carol.jvm.rmi.local.call=true
carol.jndi.java.naming.factory.url.pkgs=org.mortbay.naming
```

It is a sample! Please adapt configuration file to your requirements!

Windows desktop annotation

If you want to **disable WebPAMs annotation on desktop** (might disturb touch based application) then run Control Panel → Services → WebPAM → Log on tab → disable “Allow service to interact with desktop”! Note; events still are written to Windows system event log.

Unattended Windows install / uninstall

If WebPAM should be (un)installed unattended, you manually need to record an answer file (for both actions) and next run WebPAM executable with certain command line options… Here are sample command lines:

WEBPAM.EXE		/r /f1"C:\setup.iss"	→ create install answer file
WEBPAM.EXE	/x	/r /f1"C:\uninstall.iss"	→ create uninstall answer file
WEBPAM.EXE		/s /f1"C:\setup.iss"	→ run unattended installation
WEBPAM.EXE	/x	/s /f1"C:\uninstall.iss"	→ run unattended un-installation

Linux Command line interface

A management program for the command line is available for Linux.
Unpack i2cli-2.5.0-32.i386.rpm from Linux CLI2.5.0.32.zip and install it with ”rpm -ihv i2cli-2.5.0-32.i386.rpm”. The path of the program is /usr/sbin/cli.
It supports unattended installation by scripts, etc…

Management over network (SNMP)

If your management server requires **simple network management protocol (SNMP)** there are a few important steps to be done:

1) Install SNMP → Windows control panel → add/remove software → Windows components → management tools → SNMP
2) Run administrative tools → services → SNMP service and set it to "automatic start".
3) You may activate SNMP TRAP service if you also want to receive TRAPs on local machine (BEETLE) also!
4) In DOWNLOAD.ZIP you find a MIB file, to be included in your SNMP tool.
5) Setup required community names (ex.: "public", "private" etc…).
   You may stop / start services or reboot the system!
6) Setup your favourite SNMP management tool to the PROMISE enterprise OID: 1.3.6.1.4.1.7933.
7) It is good practice to install WebPAM afterwards; it will find SNMP already while installation!
8) TRAPS are generated with OID .promise.4.1.1.13; the important parameter = .promise.4.1.1.13.2

If you do not understand any of these keywords, please see chapter "introduction"…

MS DOS based diagnostics and inventory tool

There is a simple **DOS based diagnostics** and inventory tool available. See DOS folder inside DOWNLOAD.ZIP.

It's made to run once and returns the following exit codes, available also in PDF in DOS folder inside archive DOWNLOAD.ZIP.

Once the tool ran, a system reboot is required afterwards.

Disk handling

Disk imaging

DOS based imaging tools (GHOST, etc...) usually do not run with RAID.
You need to change to Windows based version of such tool! Of course, we did not test all available imaging tools from all over the world.

Disk replacement

If you going to replace a destroyed hard disk of a RAID1 array by **a disk that already ran in a PROMISE RAID1 array**, always run a **full clean up** before – up to very last sector of disk. Even if it takes a long time, **never delete MBR or first sectors only**!
We could see Windows XP in an endless rebooting loop caused such a half deleted disk… This does not happen with brand new HD from production!