



ZEBOR TECHNOLOGY'S WHITE PAPER ON ZBIOS®

Speed where speed matters. Anyone who has ever used a personal computer knows what it is like to wait. Before you can even begin to use a personal computer, first the BIOS has to initialize, then the OS, then its applications and so on. While for example Intel has been successful in their initiative to cut the boot time with their Rapid Boot initiative (<http://www.intel.com/design/motherbd/rbb.htm>) the boot time for computers – both personal computers and industrial and embedded computers is much too long.

In the industrial or embedded world, the boot time is many times even more crucial than for personal computers. This may be in network equipment that needs to be quickly up and running, or medical equipment. Also in embedded systems such as mobile phones, PDAs, and in-car computer systems etc, quick boot-times are essential.

According to Intel, the boot-time average in the industry is around 20 seconds. Intel has successfully managed to cut this to 12,7 seconds, but are now looking at further decreasing it with their Robson initiative – where the boot image will be stored on a flash-memory rather than a hard-drive – both increasing speed, and pro-longing battery-life on laptops.

ZBIOS® ZBIOS® from Zebor Technology in Kista, Sweden is a small, efficient and highly reliable BIOS

that can boot any x86 system. It may be hard to believe, but for example on a 486-system, it actually boots in 0,8 seconds. Used in combination with the Operating System ZDOS®, ZBIOS®+ZDOS® boots a system to prompt in less than 1,5 seconds. What the Robson initiative aims to achieve; to boot from a flash-memory, ZBIOS® already does today.

How can ZBIOS® boot so fast? The secret is simple: code and flow optimization.

ZBIOS® is today adapted to a number of chipsets on the embedded market. Among these are boards based on AMD Geode, AMD Elan SC520, STPC family and chipsets from Via Technology. Adaptations to a new platform can be a matter of hours.

Conclusion As the world quickly moves to smaller, faster and more intelligent devices, so must the processor-producers in order to take the lead. This applies both to the field of consumer applications such as mobile phones, handheld devices, PDAs etc, but also to industrial applications. ZBIOS® is the key to taking the lead in this rapid movement. The x86 platform has already lost much ground to other processor platforms such as the ARM, the RISK etc, but with a ZBIOS® and perhaps in combination with ZDOS®, the x86 platform stands to make a serious come-back, and perhaps being able to truly realize the vision of x86 everywhere.

Examples of areas of usage

- Digital set-top boxes
- Mobile phones
- Hand-helds
- Industrial robots
- Home appliances
- Tools for measuring current, signal strength etc
- Network equipment, such as routers, switchers, etc
- In cars, planes, trains
- Industrial tools
- Mountain-drills
- Security systems, encryptions
- Desk-top computers if used with a web-OS
- Pagers
- Web-pads
- Kiosks
- And more...

Technical Specifications

- Low demands on memory: ZBIOS®, ZDOS®, TCP/IP and applications fit and can boot/load from one 512KB flash memory, for example on-board memory of motherboard
- Completely embedded (no setup)
- Start in fully graphical mode with custom image (no BIOS logo etc.)
- Supports up to 255 sectors on read/write/verify on any media.
- Up to 2 IDE-channels (supporting up to 4 devices totally)
- Up to 2 floppy drives (360KB, 720KB, 1.2MB, 1.44MB, 2.88MB)
- Emulation of floppy drive in flash memory (same sizes as above)
- Emulation of hard drive in flash memory (boot from flash)
- Emulation of floppy drive on CD-ROM (EI Torito CD-ROM boot standard)
- Emulation of hard drive on CD-ROM (EI Torito CD-ROM boot standard)
- VGA graphics on ISA- or PCI-bus
- Monochrome graphics on ISA-bus
- Keyboard and/or screen emulation on a VT100-compatible terminal
- Keyboard and mouse (PS2 and USB)
- Additional features added on request