

SOLUTIONS

Zebor Technology's ZBIOS® - *Enabling speed where speed matters*

White Paper

Date: March 10, 2011



Zebor Technology

Isafjordsgatan 39B
16440 Stockholm
Sweden

Tel +46 8 559 21 830
www.zebor.com

Speed where speed matters.

Introduction

Anyone who has ever used a personal computer knows what it's like to wait. Before you can even begin to use a personal computer, the BIOS has to initialize, then the OS, then its applications and so on.

While Intel has been able to cut the boot time with their Rapid Boot initiative, the start-up time for computers – both personal computers and industrial and embedded computers is often 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 is looking at further decreasing it with another initiative – where the boot image will be stored in a flash-memory rather than a hard-drive – both increasing speed and prolonging battery-life on laptops.

ZBIOS® ZBIOS® from Zebor Technology in Kista, Sweden is a small, efficient and highly reliable BIOS that can boot any Intel x86 system. On a relatively low-performance Intel Atom based system, it actually boots in approximately 1 second. Then it can either start Windows (XP Embedded or 7 supported) or Linux, or boot Zebor Technology's own operating System ZDOS®, ZBIOS®+ZDOS® boots an Intel Atom system to prompt in less than 2 seconds. It does this by booting from a flash-memory and by using advanced optimization techniques.

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 from Axiomtek, Advantech, Portwell, Hectronic and others. ZBIOS® supports the Z520/530 and N270 CPU's today, with several of the common chipsets (945 GSE, ICH7, Poulsbo etc). Adaptions to new variants are made on request and can normally be delivered in 2 weeks.

Conclusion

As the world quickly moves to smaller, faster and more intelligent devices, so must the semiconductors be adapted to this. This applies both to the field of consumer applications such as mobile phones, handheld devices, PDAs and to industrial applications. ZBIOS® is the key to taking the lead in this rapid movement. The x86 platform has already lost much ground mainly to ARM based platforms but with a ZBIOS® and perhaps in combination with ZDOS®, the x86 platform can meet demands of the new markets and applications, providing a cost efficient platform: Intel Atom based standard boards with standard operating systems and a quick BIOS.

Examples of areas of usage

- Digital set-top boxes
- Mobile phones
- Hand-held devices
- 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
- Pagers
- Surf-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 or minimal setup)
- Start in fully graphical mode with custom image (no BIOS logo etc.) or no image.
- Full support for ACPI
- Full support for C-states (power modes)
- 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 (El Torito CD-ROM bootstandard)
- Emulation of hard drive on CD-ROM (El Torito CD-ROM boot standard)
- Non emulation native boot on CD-ROM (El 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



Zebor Technology develops and markets the fastest, most cost effective and scalable application platform (BIOS+OS) for Intel Atom based products, platforms and integrated systems, maintaining high quality standards giving a very robust product.

Zebor Technology, Isafjordsgatan 39B , 16440 Stockholm, Sweden
Worldwide +46 8 559 21 830

www.zebor.com

© 2011 Zebor Technology. All rights reserved.

Zebor Technology, ZDOS, ZBoard, ZBIOS, are either registered trademarks or trademarks of Zebor Technology in Sweden and / or other countries.

The information contained in this document represents the current view of Zebor Technology on the issues discussed as of the date of publication. Because Zebor Technology must respond to changing market conditions, this document should not be interpreted to be a commitment on the part of Zebor Technology, and Zebor Technology cannot guarantee the accuracy of any information presented after the date of publication.

This White Paper is for informational purposes only. ZEBOR TECHNOLOGY MAKES NO WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY, AS TO THE INFORMATION IN THIS DOCUMENT.

Complying with all applicable copyright laws is the responsibility of the user. Without limiting the rights under copyright, no part of this document may be reproduced, stored in or introduced into a retrieval system, or transmitted in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise), or for any purpose, without the express written permission of Zebor Technology.

Zebor Technology may have patents, patent applications, trademarks, copyrights, or other intellectual property rights covering subject matter in this document. Except as expressly provided in any written license agreement from Zebor Technology, the furnishing of this document does not give you any license to these patents, trademarks, copyrights, or other intellectual property.