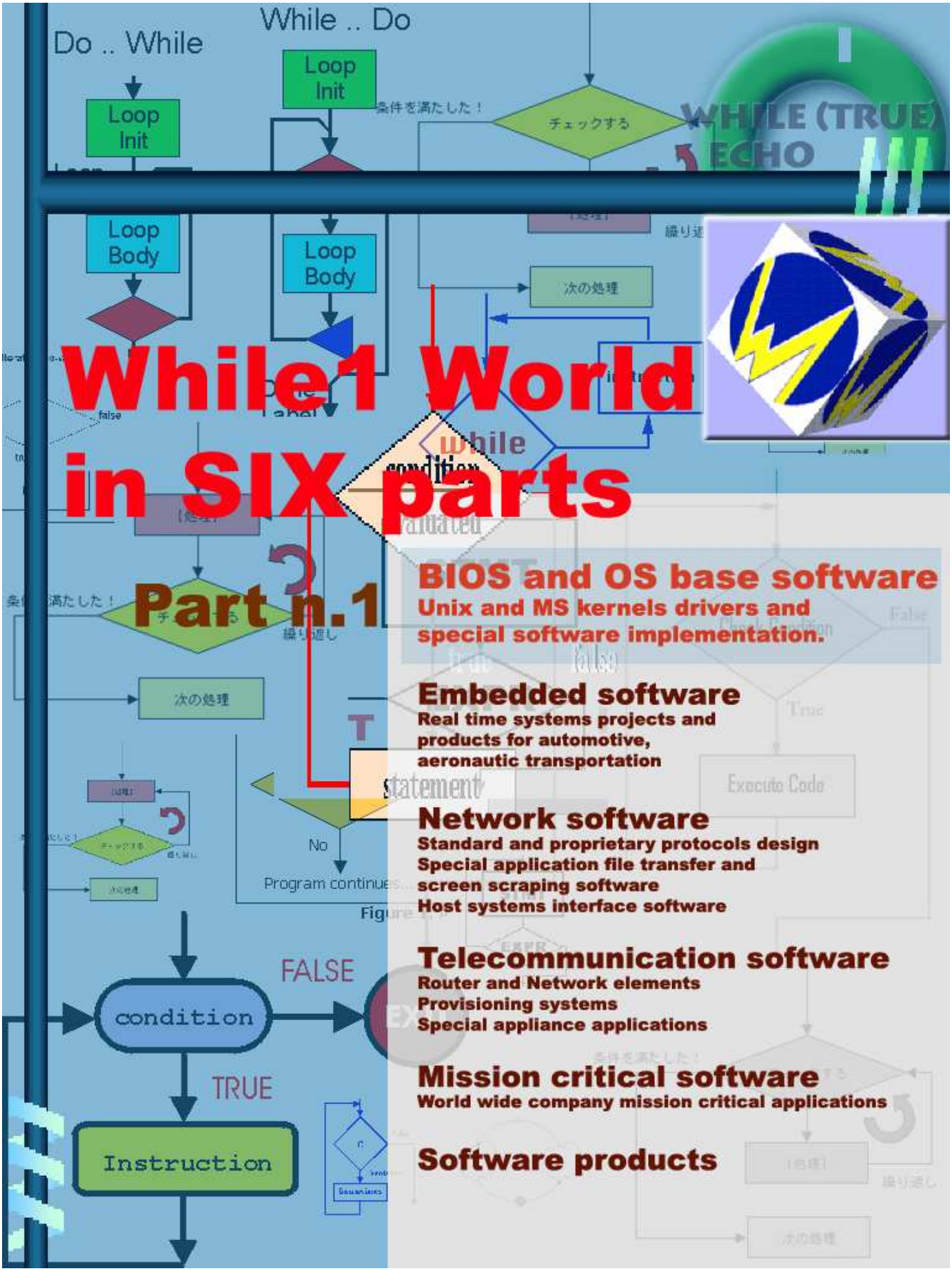


While1 World in SIX parts

Some of the developed projects for Big Companies on BIOS development

While1

(www.while1.com)

While1 main customers for bios developments:

adaptec

3ware®

Transmeta CORPORATION

3Ware

- GigaRaid 4/8 IDE channels board BIOS PC Intel based
- GigaRaid 4/8 IDE channels Open Boot (Open Firmware) complete boot support for Sparc systems

Adaptec

- AAA series complete board BIOS
- ARO series complete board BIOS
- AAC series complete board BIOS
- Viking complete board BIOS
- Anaheim complete board BIOS
- Jalapeno complete board BIOS

All projects was developed including:

Dynamic BIOS size handling
Code compressor included
Extended BIOS functions
Real Multisegment organization
PMM support
BBS full support
VDS full support
Eltorito support
Raid1/5 support
Embedded debugger
Some chipset support
Big real mode handling
Multicard support
Multiprocessor support
Configuration Utility

- **PC BIOS**
  Traditional Bios support for all Intel based Hardware systems
- **OpenBoot System**
  Boot environment for Sparc/Motorola based system (SUN, APPLE). Forth based code supporting I/O board in the initial configuration and boot phases.

PLDEB Bios Debugger

Our experience in basic software led us to create one tool, named PLDEB DEBUGGER, which is very important for BIOS code development.

PLDEB code is merged with the BIOS code. Since it uses serial port, it is possible with a separated workstation to debug INIT and RUNTIME BIOS phases.

Transmeta

New main board complete BIOS for Efficeon CPUs

The experience with Transmeta processor allows us to produce a general main board BIOS usable with other CPUs and some other hardware components.

WBIOS

Transmeta Efficeon Features

On-die L1 Instruction Cache, On-die L1 Data Cache,
On-die L2 Write-Back Cache ,
HyperTransport control,
MMX, SSE, SSE2 Instruction Support,
Fully Integrated Northbridge Functionality (Transmeta)
Fully Integrate SouthBridge Functinality for NVIDIA nforce3, Ali1563
Integrated AGP 1X, 2X, and 4X graphics interface
Support for DDR-266, 333, 400 memory , Support for ECC memory ,
Integrated Low Pin Count Bus (LPC)

Industry Standards Features

Advanced Power Management (APM) Specification 1.2,
Advanced Control and Power Interface (ACPI) Specification 2.0,
POST Mem Manager (PMM) Specification 1.01
Plug-n-Play Specification 1.0A
Multiprocessor Specification SMP 1.4,
DMI 2.3.1 (SMBIOS),
CD-ROM Boot "El Torito" Specification 1.0,
PCI Specification 2.2, PXE Specification,
BIOS32 Specification, Enhanced Disk Drive Specification 1.1

Standard BIOS Features

DRAM detection & configuration, ROM shadowing , Option ROM calls, Cache control, CPU speed control, PC/AT glue logic supported natively (8259, 8237A, 8254, 8042, etc.), Standard FDC, ATA drivers, PC/XT, PC/AT keyboard drivers,
6845 video driver

Embedded Features

XP Embedded Ready, Watchdog timer,
Supports embedded CPUs with add-on CPU Personality Modules ,
RAM with quick, standard, or exhaustive testing, Embedded PCI option ROMs, Embedded ROM extensions, ATA 133 compatibility for advanced PIO/UDMA, Hard drives over 8.4 GB, APIC and IOAPIC support,
Advanced boot sequencing, including command line interpreter, and debugger CMOS or CMOS-less designs

Operating System Support

WBIOS is compatible with: DOS, Windows 9x/Me, Windows NT, Windows CE, Windows 2000, Windows XP, Windows 2003 Server, Linux, QNX and other Real Time Operating Systems .

WBIOS
Main board Bios

- Derived from LinuxBios 2
- Developed specifically for Transmeta Efficeon processor, but easily portable for other similar processors
- The original version was oriented to boot only Linux OS. New version is oriented to support all operating systems.
- Integrated and expandable setup application
- Now it is a real new complete BIOS with all required supports like APM, ACPI, "El Torito" CDROM boot, PCI, Plug-n-Play, PXE, SMBIOS, SMM, SMP, and Legacy USB is included.

Modular Architecture

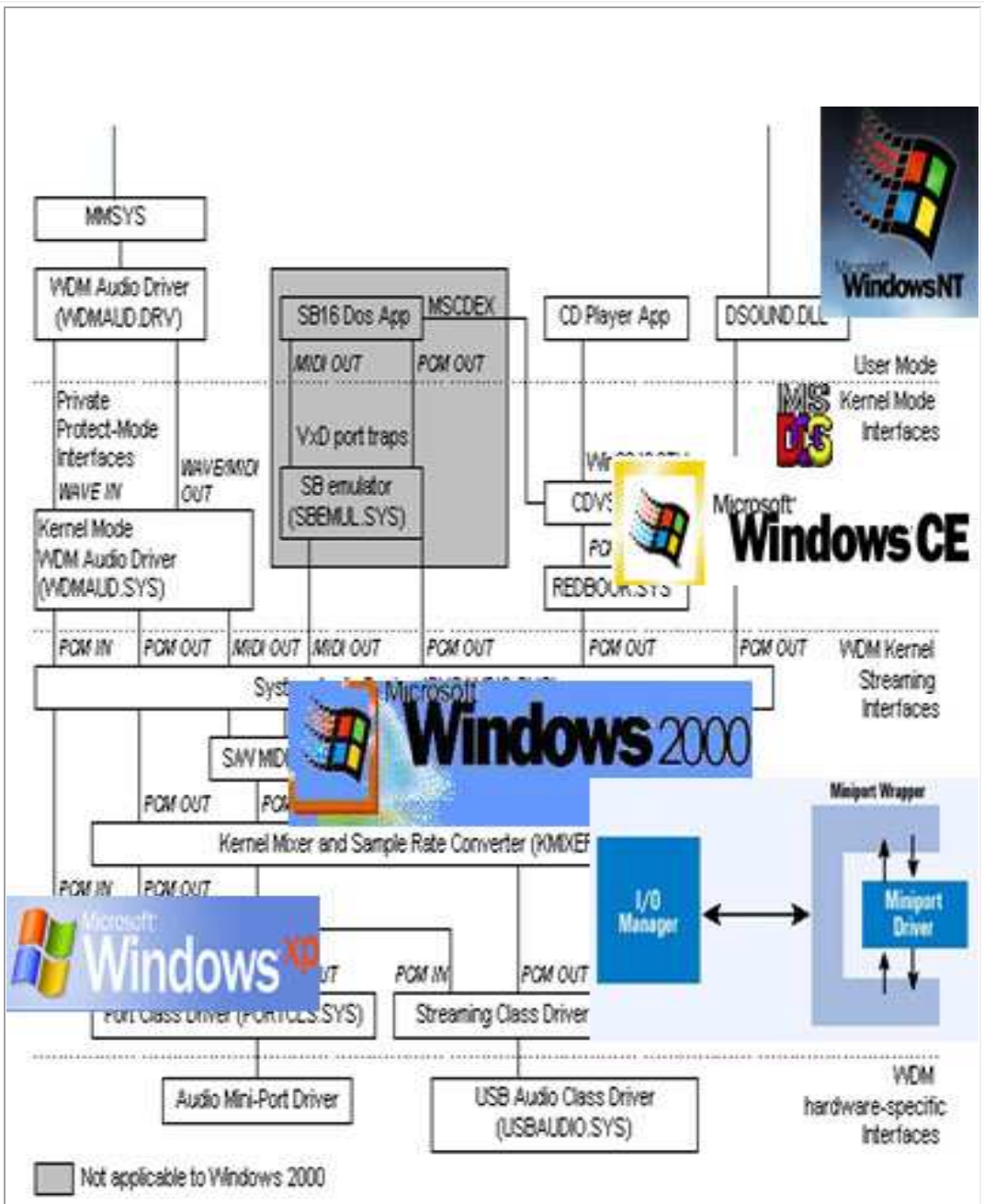
WBIOS is composed by dynamic modules that can be easily added to or removed from the structure. This flexibility allows the developer to easily customize a BIOS project.

Flexible architecture

WBIOS is also ideal for embedded and non-traditional computers that do not require full-featured PC BIOS.

Support environments

Complete configuration utility, fast POST, power management features and support for a wide set of pre-boot utilities.



Hundreds of projects

using all Microsoft systems

While1

(www.while1.com)

While1 main customers for Microsoft Drivers developments:

olivetti

attune SYSTEMS

adaptec

American Megatrends

BROADCOM

MOTOROLA

Western Digital

3ware

NetFRAME

Adaptec

- SCSI Miniport drivers for AAA Raid cards
- SCSI Miniport drivers for ARO Raid cards

AMI

- SCSI Miniport drivers for HyperDisk cards
- Filter Driver at Port Level to introduce a new Disk Cache Level

Motorola

- Special Serial Line software device drivers

Attune Systems

- Development on an embedded Server 2003–based for a distributed file-level virtualization Virtual File System.
- File System Check Utility
- File system filter driver for routing I/O requests submitted by the CIFS server driver (SRV.SYS) to NAS volumes through the redirector.
- File system filter driver that provides opportunistic locks (oplocks) to the CIFS server driver for requests directed to the redirector.

Microsoft

For WinXp, WInNT, WIn2K, WinCE we can develop from scratch all types of:

- **NDIS Device Drivers**
- **SCSI MINIPORT Device Drivers**
- **TDI Protocols**
- **File Systems**
- **Port Filter Drivers**
- **File System Filter Drivers**
- **Printers Drivers**
- **Print Processors**

For Win3x, Win9x, WinME we can develop from scratch all previous listed components and:

- **VXD Device Drivers**
- **SCSI W9x MINIPORT Device Drivers**
- **Virtual File Managers**

Development on an embedded Server2003 based distributed file-level virtualization system capable of presenting to users any number of NAS volumes as if they were a single volume. The file system supports NFS and CIFS clients, and CIFS servers. It supports RAID 1 and 5 across NAS volumes.

Broadcom

- Complete study to develop a ISCSI miniport interface

- ISCSI protocol Miniport Drivers

Design of a special device driver that implements a SCSI miniport paradigm. In this case the module doesn't interface a specific local hardware. In fact, it is necessary to contact specific storage equipment that includes some physical devices connected to the network. The SCSI HBA driver must redirect any I/O operation to the network using a specific ISCSI protocol in order to reach the configured remote disks. To realize these features, it is necessary that the HBA driver interfaces a network driver via TDI interface (Transport Driver Interface).

UNM

- Complete study to develop some components as:
  TDI off load TCP engine protocol
  Special Miniport driver
  Special Virtual File System

Western Digital

- SCSI Miniport driver for WD7296 cards

Virtual Network

- TDI protocol to implement special IP Aliasing algorithm

- TDI protocols

- NDIS miniport drivers

Fasy

- PrintProcessor intercepting EMF format able to change/replace all parts in the original print format.
  Ready for all following Microsoft OS:
  Windows 98/Me, Windows XP,
  Windows NT, Windows 2000, Windows 2003

- PRINT PROCESSOR

EMF interpreter, and special library that can add, remove or change all parts from the original print format.

Compuprint

- USB interface library used to connect via USBPrint.sys the SP40 printer

ICL-Fujitsu

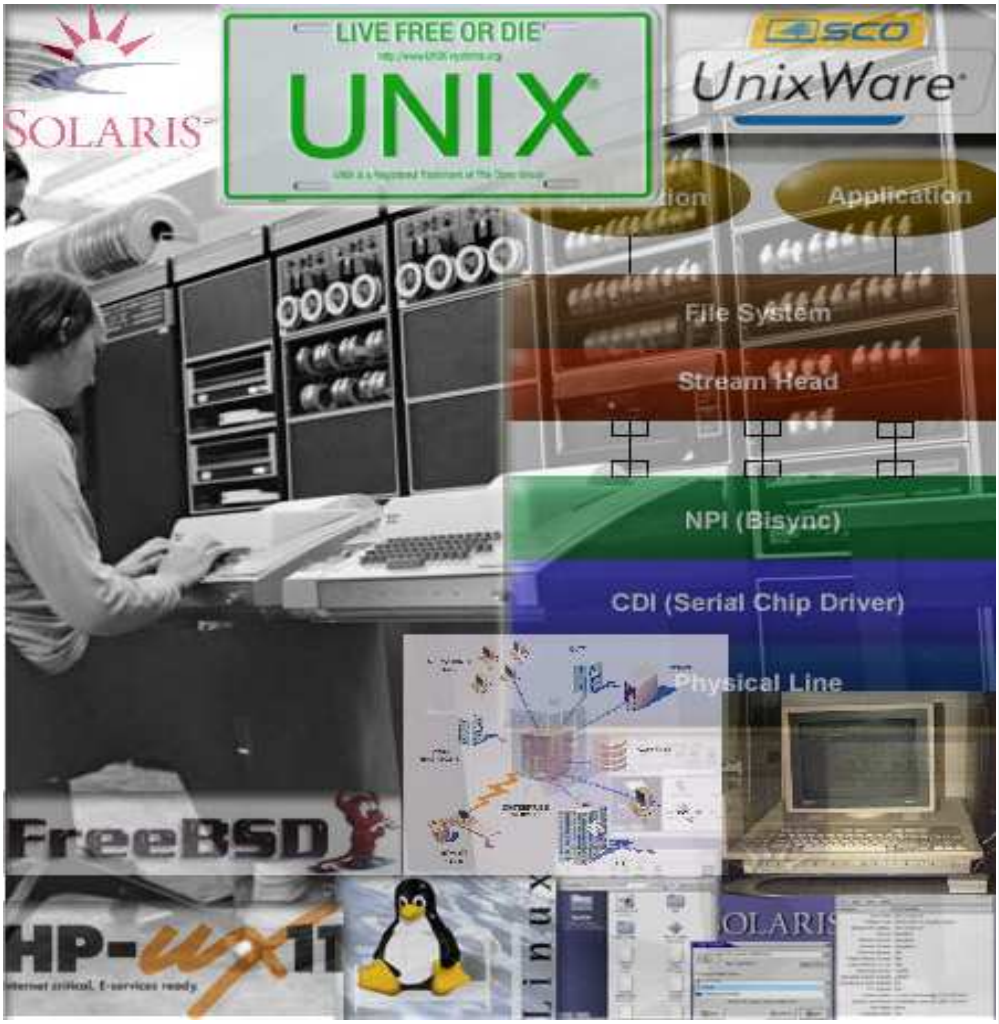
- Some Printer Drivers

Olivetti

- Wan device driver for LPU cards under SNA server environment
- LAN NDIS driver to handle 914x Ethernet IDE boards
- LAN NDIS driver to handle 918x Ethernet EISA boards
- Printer drivers for some Olivetti printers
- Wan Realization of a REAL-TIME and TIME-SHARING KERNEL to emulate a Thread concept for a WINDOWS 3.0 operating system.

Symbol

- Design, analysis and implementation of a TSR module for DOS to buffered handling of serial lines and modems on palm terminal Symbol PPT 4100



25 Years of experience on various Unix systems

While1

(www.while1.com)

While1 main customers for UNIX Drivers developments:

olivetti

Adaptec

3ware

ST

Western Digital

SCO

ICL

St Microelectronics

- Linux porting on SH5 processor based boards
- Study of new PCI bus handler to manage PCI bridges and cards configuration

3Ware

- SCSI drivers for GiGaRaid PCI cards (SUN Solaris, UnixWare, SCO)

Western Digital

- SCSI driver for WD7296 PCI cards (SUN Solaris, UnixWare, SCO)

ICL-Fujitsu

- Worm File System and special Device Drivers for optical Disks

Encore

- Device-driver for ENCORE REFLECTING-MEMORY system

Novell

- PORTING of the product NETWARE FOR UNIX (NOVELL) inside UNIX SV 4.0 LSX 5000 OLIVETTI.

For Unix we can develop completely from scratch all types of drivers and special kernel components:

- All peripherals: Disks, Tapes, Optical, Printers, etc.
- SCSI HAD drivers
- DLPI Mac LAN drivers
- LLI Mac LAN drivers
- TTY Drivers
- Line Discipline
- Virtual File Systems
- TPI Protocols
- Streams Modules TCP/IP, UDP, SPX/IPX, etc.

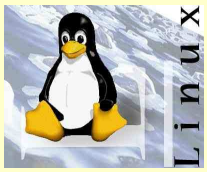
SCO

- **Device driver for WAN multichannel board**
- **Development of a new version of the Multiprocessor Kernel SCO MPX (Corollary) for all Olivetti Intel fully-symmetric 4-processor multiprocessor systems.**

Olivetti

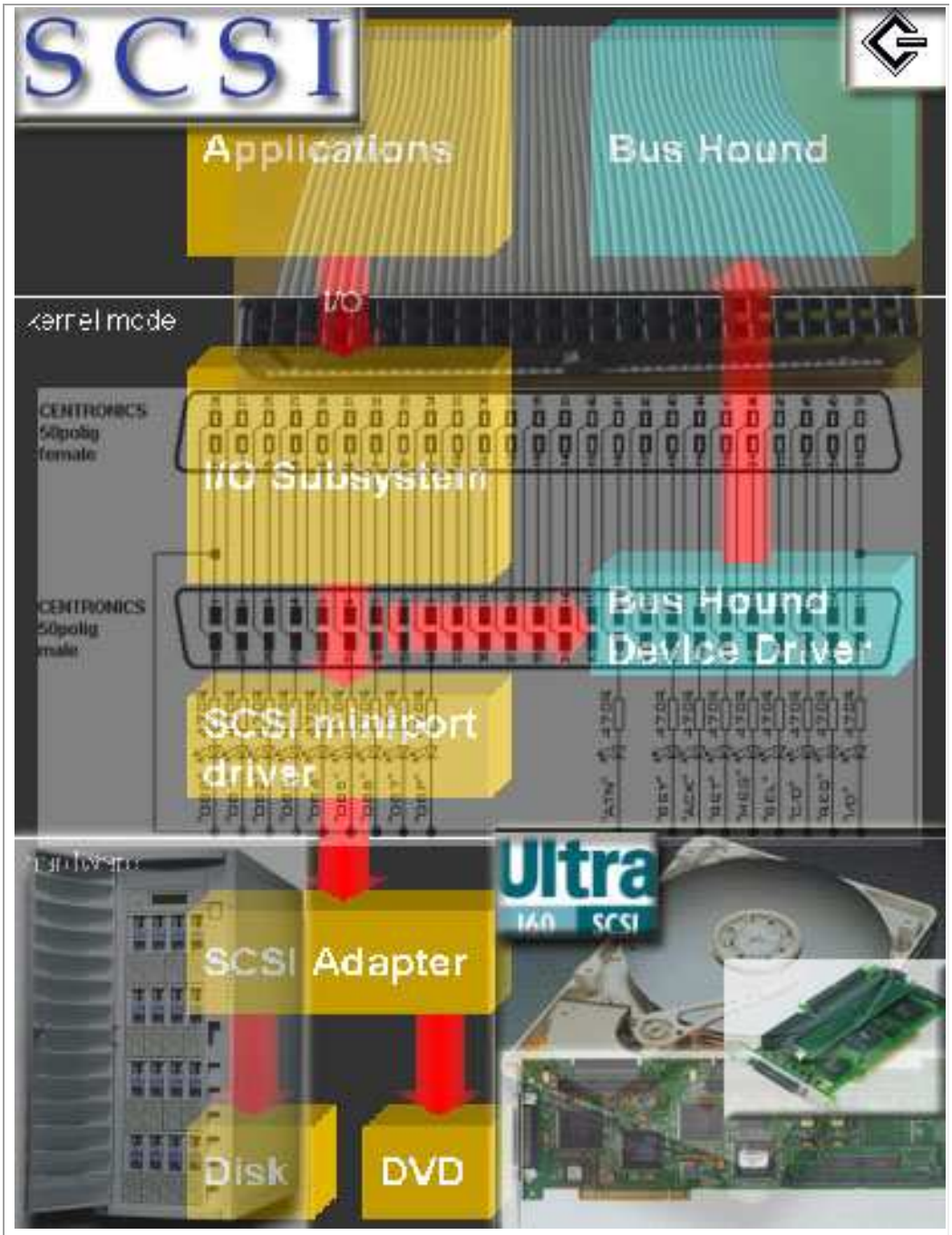
- **DLPI / LLI Mac driver for some Olivetti Cards**
- **Dual Host and Clustering Systems**
- **SCSI driver for some Olivetti cards**
- **Kernel Extensions for Multiprocessor systems (Unix Sv4, SCO)**
- **TTY drivers and special line disciplines**
- **TCP streams implementation,**
- **Complete implementation of the protocol NETBIOS TCP/IP based for the standard RFC1001/RFC1002**
- **Some Unix Kernel special parts (system calls, libraries, etc.)**
- **Analysis of hardware layout And creation of the whole software** (kernel RT, driver TTY, io-routines, etc.) working on **ALC8** smart controller: using hardware based on **MC68000** processor, ZSCC8530 uart and ZCIO8030 timer, this environment acts as a **manager for 8 S232/CL serial lines**, hosting software for UNIX LINE-DISCIPLINE on the card. This provides operating system with high level interfaces (system-call) in order to manage serial lines.
- **Maintenance of Olivetti Unix System V 4.0 (Multiprocessor kernel, protocols, drivers, libraries etc.**
- **Maintenance of Olivetti Storages : Juke box file systems, Work file systems etc.**
- **Maintenance and development for a subsystem RAID-5 software (NCR version) on LSX5000 OLIVETTI system with UNIX 4.0.**

Unix OS



Some other information about all other activities of While1 are available in our main web site:

(www.while1.com **)**



High experience

development team for all Microsoft and Unix SCSI device drivers

And currently in particular for all Solaris Sun systems

While1

(www.while1.com)

While1 main customers

for SCSI Drivers developments:

olivetti

adaptec

Western Digital

SCO

ICL

3ware

American Megatrends

Olivetti

- SCSI Host Adapter driver for some Olivetti cards using Microsoft WinNt/2K/9x and all most important Unix.

3Ware

- SCSI drivers for GiGaRaid PCI cards for Sun Solaris

Western Digital

- SCSI driver for WD7296 PCI cards for Sun Solaris, Unixware, SCO, AT&T SV4, Unix systems

ICL-Fujitsu

- Peripheral SCSI peripheral drivers for Worm optical Disks using Unix System V.

Adaptec

- SCSI Miniport driver for some ARO/AAA cards using Microsoft Windows NT
- SCSI HAD driver for some ARO/AAA cards under Unix SCO OpenServer and Unixware.

For some Unix and all Microsoft Windows OS we can develop completely from scratch all types of SCSI drivers:

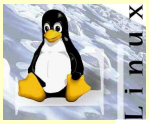
Unix

- SCSI Host Adapter drivers :
  Sun-SCSA,
  PDI-SV4.2
  SDI-SV4.0,
  SCO-HAD,
  Linux-HBA.
- Monolithic SCSI peripheral drivers

Microsoft

- Miniport and Filter Drivers
- Monolithic SCSI peripheral drivers

Unix OS on which we can develop SCSI drivers



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