Xen Source Code Overview

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Introduction

This document contains a basic overview of the directories and files found in the Xen hypervisor 3.4.0 release source code. This source code is part of the Xen.org open source community found at www.xen.org.

In this document, all directories will be displayed in *italics*.

To Do Items for Document

- Finish the listing of all files in the source tree with descriptions of each file
- Create Directory Overview Text

Xen Source Code

The latest stable release of Xen, including source code is available at http://www.xen.org/download. Previous stable releases are also available at http://www.xen.org/download/archives.html. Pre-release software currently under active development is available at http://xenbits.xensource.com/.

Directory Structure

The Xen 3.4 source code structure appears as follows:

- buildconfigs
- config – Flags for compiling Xen on various operating systems
- *docs* – Xen Documentation in LaTEK and man pages
- extras – Code for a mini-OS DomU
- stubdom - IOEMU Stub DomU, PV-GRUB Stub DomU, and Sample Code for Creation of new Stub DomUs
- tools – Supporting or enhanced tools for Xen hypervisor
- unmodified_drivers – Linux 2.6 drivers
- xen – Core hypervisor

Each of these main directories will be detailed further in this document to highlight the files and sub-directories within each folder.

Home Directory

The home directory of xen-3.4.0 contains the all the directories listed previously and the following files:

- .bk-to-hg - Mercurial Repository Files
- .hg_archival.txt - Mercurial Repository Files
- .hgignore - Mercurial Repository Files
- .hgtags - Mercurial Repository Files

- .hg-to-bk – Mercurial Repository Files
- .rootkeys - Mercurial Repository Files
- Config.mk – Makefile Document
- Copying – GNU Public License Information
- install.sh – Xen Installation Shell Script
- Makefile- Top Level Makefile for Xen
- README – Short Overview of Xen, Quick Start Guide for Pre-Built Binary Release & Source Release

BuildConfigs Directory

Makefile details; not documented at this time.

Config Directory

The following files are found at *\xen-3.4.0\config*

- FreeBSD.mk – specific makefile settings for various operating systems
- ia64.mk – specific makefile settings for various operating systems
- Linux.mk – specific makefile settings for various operating systems
- MiniOS.mk – specific makefile settings for various operating systems
- NetBSD.mk – specific makefile settings for various operating systems
- OpenBSD.mk – specific makefile settings for various operating systems
- StdGNU.mk – specific makefile settings for various operating systems
- SunOS.mk – specific makefile settings for various operating systems
- x86_32.mk – specific makefile settings for various operating systems
- x86_64.mk – specific makefile settings for various operating systems

Docs Directory

The following files and directories are found at *\xen-3.4.0\docs*

- check_pckgs – Announce missing package for Xen documentation
- ChangeLog – List of changes/additions to the API/ABI that might impact cross-OS compatibility or otherwise impact OS implementation
- Doxyfile – Settings used by documentation system doxygen for a project; Xen Python Tools
- Doxyfilter – Python settings

- Makefile – Latex documentation makefile
- Docs.mk – Makefile support data
- pythfilter.py - Doxygen filter which can be used to document Python source code
- html.sty - Definitions of LaTeX commands which are processed in a special way by the translator
- Readme.xen-bugtool – xen-bugtool command line readme txt file

Figs Directory

The following files and directories are found at *\xen-3.4.0\docs\figs*

- acm_expoligy_gui.eps – image file
- acm_overview.eps – image file
- xenlogo.eps – image file

Man Directory

The following files and directories are found at *\xen-3.4.0\docs\man*

.pod file type - Text file used for documenting source code written in the Perl programming language

- xend-config.sxp.pod.5 - Xen daemon configuration file
- xm.pod.1 - Xen management user interface
- xmdomain.cfg.pod.5 - xm domain config file format

Misc Directory

The following files and directories are found at *\xen-3.4.0\docs\misc*

- blkif-drivers-explained.txt - How the Blkif Drivers Work
- crashdb.txt - Xen crash debugger notes
- dump-core-format.txt - Xen dump-core format
- grant-tables.txt - A Rough Introduction to Using Grant Tables
- hg-cheatsheet.txt - Mercurial(hg) Cheatsheet for Xen
- kexec_and_kdump.txt – A brief guide to using Kexec and Kdump in conjunction with Xen
- sedf_scheduler_mini+HOWTO.txt - sEDF scheduler
- VMX_changes.txt - Changes to Xen in support of Intel(R) Vanderpool Technology
- vtd.txt - How to do PCI Passthrough with VT-d
- vtpm.txt – A short introduction to the virtual TPM support in XEN
- xen_config.html - Xen Configuration Syntax

- xend.tex – Xen overview in LaTeX
- xen-error-handling.txt - Error handling in Xen
- xenstore.txt - Xenstore protocol specification
- xsm-flask.txt - Notes are compiled from xen-devel questions and postings that have occurred since the inclusion of XSM

Src Directory

The following files and directories are found at *\xen-3.4.0\docs\src*

- interface.tex – Technical interface manual in LaTeK
- user.tex – User manual in LaTeK

Xen-API Directory

The following files and directories are found at *\xen-3.4.0\docs\xen-api*

- xenapi-datamodel-graph.dot - Xen-API Class Diagram in LaTeK stored in word format
- xenapi-datamodel.tex – Xen-API Class Definitions in LaTeK
- xenapi-coversheet.tex - Xen Management API cover page in LaTeK
- xenapi.tex – Xen-API document structure in LaTeK
- xen.eps – Image file of Xen logo
- wire-protocol.tex - Wire Protocol for Remote API Calls in LaTeK
- vm-lifecycle.tex - VM Lifecycle states in LaTeK
- vm_lifecycle.dot – Diagram for VM Lifecycle in word format
- todo.tex – Xen-API ToDo List in LaTeK
- revision_history.tex – Document revision notes in LaTeK
- presentation.tex – Xen-API overview content in LaTeK
- Makefile – LaTeK makefile for documents
- fdl.tex - GNU Free Documentation License in LaTeK
- coversheet.tex – Coversheet in LaTeX

Extras Directory

The following directory is located in *\xen-3.4.0\extras*

Mini-OS Directory

The following directories and files are located in *\xen-3.4.0\extras\mini-os*

- app.lds - Header file containing variables, constants, functions, and other data that may be referenced by a source code file during compilation
- blkfront.c - Minimal block driver for Mini-OS based on netfront.c
- Config.mk – Makefile configuration settings
- daytime.c - A simple network service based on lwIP and mini-os
- domain_config - Python configuration setup for 'xm create'
- events.c - Deals with events received on event channels for MiniOS
- fbfront.c - Frame Buffer + Keyboard driver for Mini-OS based on blkfront.c
- fs-front.c - Frontend driver for FS split device driver for MiniOS
- gntmap.c - Manages grant mappings from other domains for MiniOS
- gnttab.c - Simple grant tables implementation for MiniOS
- hypervisor.c - Communication to/from hypervisor for MiniOS
- kernel.c – Initial C Entry Point for MiniOS
- lock.c - Locks for newlib fro MiniOS
- lwip-arch.c - Arch-specific semaphores and mailboxes for lwIP running on MiniOS
- lwip-net.c - Interface between lwIP's ethernet and MiniOS's netfront
- main.c - POSIX-compatible main layer for MiniOS
- Makefile – Makefile for MiniOS software
- minios.mk – Common make rules for MiniOS
- mm.c - Memory management for MiniOS
- netfront.c - Minimal network driver for Mini-OS based on netfront.c
- pcifront.c - Minimal PCI driver for Mini-OS based on blkfront.c
- README - Shows some of the stuff that any guest OS will have to set up
- sched.c - Simple scheduler for Mini-Os

Arch Directory

The following directories are located in *\xen-3.4.0\extras\mini-os\arch*

IA64

The following files are located in *\xen-3.4.0\extras\mini-os\arch\ia64*

- arch.mk – Makefile settings
- common.c – Initialize/Start

- debug.c - Prints debug information on a crash of mini-os
- efi.c - Extensible Firmware Interface data collection
- gen_off.c – Turn off all the XXXX
- Makefile- Makefile
- minios-ia64.lds - Header file containing variables, constants, functions, and other data that may be referenced by a source code file during compilation
- mm.c - Special ia64 memory management
- sal.c - Pal and sal functions for BIOS
- sched.c - ia64 specific part of the scheduler for mini-os
- time.c - Simple ia64 specific time handling
- xencomm.c – Memory translation routines
- __divdi3.asm – 64 bit Signed Integer Divide Assembly
- __udivdi3.asm – 64 bit Unsigned Integer Divide Assembly
- __vdivsi3.asm – 32-bit Unsigned Integer Divide Assembly
- __umoddi3.asm – 64-bit Unsigned Integer Remainder Assembly
- fw.asm – ia64_change_mode: change mode to/from physical mode
- ia64.asm - Allocate kernel stack area
- ivt.asm - Interrupt handling

x86

The following directories are located in *\xen-3.4.0\extras\mini-os\arch\x86*

- arch.mk - Makefile settings
- ioremap.c – Memory mapping routines
- Makefile - Makefile
- minios-x86_32.lds - Header file containing variables, constants, functions, and other data that may be referenced by a source code file during compilation
- minios-x86_64.lds - Header file containing variables, constants, functions, and other data that may be referenced by a source code file during compilation
- mm.c - Special x86 memory management
- sched.c - Simple scheduler for Mini-Os
- time.c - Simple time and timer functions
- traps.c - Entry points for virtual exceptions

- x86_32.asm – Event processing for 32 bit
- x86_64.asm – Event processing for 64 bit

Console Directory

The following files are found at *\xen-3.4.0\extras\mini-os\console*

- console.c - Console interface
- xencons_ring.c – Event handler (send, receive)

Include Directory

The following files and directories are found at *\xen-3.4.0\extras\mini-os\include*

- blkfront.h – blkfront definition and function calls
- byteswap.h – 16, 32, and 64 bit byte swap function calls
- console.h - Console interface data struct and function calls
- ctype.h – ctype structure definition and function calls
- err.h - Kernel pointers have redundant information, so we can use a scheme where we can return either an error code or a dentry pointer with the same return value.
- errno.h – Error number definitions
- errno-base.h – Error number definitions
- events.h - Deals with events on the event channels
- fbfront.h - kbdfront_dev struct and function calls
- fcntl.h - open/fcntl - O_SYNC is only implemented on blocks devices and on files located on an ext2 file system
- fs.h - fs_import struct and function calls
- gntmap.h – gntmap struct and function calls
- gnttab.h – gnttab struct and function calls
- hypervisor.h – hypervisor handling
- ioremap.h – ioremap struct and function calls
- kernel.h – do_exit and stop_kernel function calls
- lib.h - Random useful library functions, contains some freebsd stuff
- list.h - Simple doubly linked list implementation
- lwipopts.h - Configuration for lwIP running on mini-os
- mm.h – memory functions

- netfront.h – netfront_dev and function calls
- pcifront.h – pcifront_dev and function calls
- sched.h - Architecture specific setup of thread creation
- semaphore.h - Implementation of semaphore in Mini-os
- spinlock.h - Your basic SMP spinlocks, allowing only a single CPU anywhere
- time.h - Time and timer functions
- types.h - A random collection of type definitions
- wait.h – wait queue struct and function calls
- waittypes.h – wait_queue struct and function calls
- xenbus.h – xenbus_transaction_t struct and function calls
- xmalloc.h – Memory allocation struct and function calls

Arch Directory

The following files are found at *\xen-3.4.0\extras\mini-os\include\arch*

- cc.h - Compiler-specific types and macros for lwIP running on mini-os
- perf.h - Arch-specific performance measurement for lwIP running on mini-os
- sys_arch.h - Arch-specific semaphores and mailboxes for lwIP running on mini-os

IA64 Directory

The following files are found at *\xen-3.4.0\extras\mini-os\include\ia64*

- arch_limits.h – Page size maximum settings
- arch_mm.h – Frame mapping
- arch_sched.h - The file contains ia64 specific scheduler declarations
- arch_spinlock.h - The file contains ia64 special spinlock stuff
- asm.h – Assembly Entry Macro
- atomic.h - Various simple arithmetic on memory which is atomic in the presence of interrupts and SMP safe
- efi.h - efi header files of Intels' EFI_Toolkit_1.10.14.62
- hypervcall-ia64.h - Mini-OS-specific hypervisor handling for ia64
- ia64_cpu.h – Register Definitions
- ia64_fpu.h – Register Definitions
- os.h – EFI structs and functions

- page.h - Common stuff for memory and page handling
- pal.h - Architected static calling convention procedures
- privop.h - Paravirtualizations of privileged operations for Xen/ia64
- sal.h - SAL System Table
- traps.h - Trap struct and functions

Linux Directory

The following file is found at *\xen-3.4.0\extras\mini-os\include\linux*

- types.h – Linux types definition

Posix Directory

The following files and directories are found at *\xen-3.4.0\extras\mini-os\include\posix*

- dirent.h – Struct dirent and function headers
- err.h – Error function headers
- fcntl.h - #defines for FCNTL
- limits.h - #define settings for maximum values (e.g. integer)
- netdb.h – Struct hostent and function gethostbyname header
- pthread.h – Struct pthread and function headers
- signal.h – Sigaction function header
- stdlib.h – Defines realpath as strcpy (headers)
- strings.h - Defines bzero (headers)
- syslog.h - Log #Defines and function headers
- termios.h - #Defines, struct termios and function headers
- time.h – Function headers nanosleep and clock_gettime
- unistd.h – Function headers for getpagesize, ftrunctae, and lockf
- *arpa/*inet.h - #define
- *net/*if.h – Struct if_nameindex and function headers
- *netinet*/in.h - #define
- *netinet/*tcp.h - #define
- *sys/*ioctl.h - #define _IOC and function headers
- *sys*/mman.h - #define and function headers
- *sys*/poll.h - #define and function headers

- *sys*/select.h - #define and select function header
- *sys*/socket.h –Socket function headers
- *sys*/stat.h – Function header fstat

Sys Directory

The following files are found at *\xen-3.4.0\extras\mini-os\include\sys*

- lock.h – Lock struct and function calls
- time.h - Time and timer functions

X86 Directory

The following files and directories are found at *\xen-3.4.0\extras\mini-os\include\x86*

- arch_limits.h – Page size maximum settings
- arch_mm.h – Frame mapping
- arch_sched.h - The file contains x86 specific scheduler declarations
- arch_spinlock.h - The file contains x86 special spinlock stuff
- os.h - EFI structs and functions
- traps.h - Trap struct and functions
- */x86_32*/hypercall-x86_32.h - Copied from XenLinux
- */x86_64*/hypercall-x86_64.h - Copied from XenLinux

Lib Directory

The following files are found at *\xen-3.4.0\extras\mini-os\lib*

- ctype.c – ctype array definition
- math.c - Library functions for 64bit arith and other
- printf.c - Library functions for printing
- stack_chk_fail.c – stack_chk_fail function
- string.c - Library function for string and memory manipulation
- sys.c - Provides the UNIXish part of the standard libc function
- xmalloc.c - Simple memory allocator
- xs.c - Mere wrapper around xenbus

Xenbus Directory

The following file is found at *\xen-3.4.0\extras\mini-os\xenbus*

- xenbus.c - Minimal implementation of xenbus

Stubdom Directory

The following files and directories are found at *\xen-3.4.0\stubdom*

- libpci.config – Configuration file
- libpci.config.mak – Makefile settings
- lwip.patch-cvs – Changelog tracking file
- Makefile - Makefile
- newlib.patch – Series of header file definition patches
- newlib-chk.patch – Series of code change patches
- pciutils.patch - Series of code change patches
- README.txt - IOEMU stubdom, PV-GRUB, & Your own stubdom information
- stubdom-dm - dm script around stubdomains

C Directory

The following files are in the directory *\xen-3.4.0\stubdom\c*

- main.c – Hello World print file
- Makefile - Makefile

Caml Directory

The following files are in the directory *\xen-3.4.0\stubdom\caml*

- hello.mi – Hello World print file
- main-caml.c - Caml bootstrap
- Makefile - Makefile

Grub Directory

The following files are in the directory *\xen-3.4.0\stubdom\grub*

- boot-x86_32.asm – Boot target OS
- boot-x86_64.asm – Boot target OS
- config.h – Header file definitions
- kexec.c - This supports booting another PV kernel from Mini-OS
- Makefile – Makefile

- mini-os.c - Mini-OS support for GRUB
- mini-os.h – Mini-OS header file
- osdep.h – Header files

Grub.patches Directory

The following files are in the directory *\xen-3.4.0\stubdom\grub.patches*

- 00cvs - Series of code change patches
- 10graphics.diff - Series of code change patches
- 20print_func.diff - Series of code change patches
- 30savedefault.diff - Series of code change patches
- 40ext3_256byte_inode.diff - Series of code change patches
- 50fs_fulldisk.dff - Series of code change patches
- 99minios - Series of code change patches

Tools Directory

The following files and directories are found at *\xen-3.4.0\tools*

- Compat-build-header.py -
- Compat-build-source.py
- Get-fields.sh – Shell script
- Makefile – Makefile
- Symbols.c - Generate assembler source containing symbol information

Figlet Directory

The following files are found at *\xen-3.4.0\tools\figlet*

- Figlet.c - Hacked to output C octal strings for inclusion in a header file. Support for opening zipped files is removed.
- LICENSE - Artistic License text
- Makefile – Makefile
- README – Comments on Figlet.c file
- xen.flf - FIGlet is a tool for converting text to figletized text. A figletized font is a font of larger letters made from standard ASCII characters.

Unmodified_drivers Directory

The following files and directories are found at *\xen-3.4.0\unmodified_drivers*

Xen Directory

The following files and directories are found at *\xen-3.4.0\xen*

- COPYING – Source code licenses
- Makefile – Makefile
- Rules.mk – Makefile settings

Arch Directory

The following directories are found at *\xen-3.4.0\xen\arch*

Ia64 Directory

The following files and directories are found at *\xen-3.4.0\xen\arch\ia64*

- asm-offsets.c - Generate definitions needed by assembly language modules. This code generates raw asm output which is post-processed to extract and format the required data
- asm-xsi-offsets.c - c-basic-offset:4; tab-width:4; indent-tabs-mode:nil
- Makefile – Makefile
- Rules.mk – Makefile settings

Linux Dirctory

The following files and directories are found at *\xen-3.4.0\xen\arch\ia64\linux*

- bitop.c - Find next zero bit in a bitmap reasonably efficiently..
- carta_random.asm - Fast, simple, yet decent quality random number generator
- clear_page.asm – Clear page for Itanium and McKinley
- copy_page_mck.asm - McKinley-optimized version of copy_page()
- efi_stub.asm - This stub allows us to make EFI calls in physical mode with interrupts turned off
- extable.c - Kernel exception handling table support. Derived from arch/alpha/mm/extable.c.
- flush.asm - Cache flushing routines
- hpsim.asm – Simulator system call
- idiv32.asm - 32-bit integer division
- idiv64.asm – 64-bit integer division
- io.c - Copy data from IO memory space to "real" memory space

- irq_lsapic.c - This takes care of interrupts that are generated by the CPU's internal Streamlined Advanced Programmable Interrupt Controller (LSAPIC), such as the ITC and IPI interrupts.
- linuxextable.c - Sort the kernel's built-in exception table
- machvec.c – Machine vector tables
- Makefile – Makefile
- memcpy_mck.asm - Itanium 2-optimized version of memcpy and copy_user function
- memset.asm - Optimized version of the standard memset() function
- numa.c - This file contains NUMA specific variables and functions which can be split away from DISCONTIGMEM and are used on NUMA machines with contiguous memory.
- pal.asm - PAL Firmware support IA-64 Processor Programmers Reference Vol 2
- pcdp.h - Definitions for PCDP-defined console devices
- Readme.origin - Source files in this directory are identical copies of linux-2.6.13 files
- strlen.asm - Optimized version of the standard strlen() function
- *dig/machvec.c* – PLATFORM name and header structures
- *dig/Makefile* - Makefile
- *dig/README.origin* - Source files in this directory are identical copies of linux-2.6.19 files
- *hp/Makefile* – Makefile
- *hp/zx1/hpzx1_machvec.c* - PLATFORM name and header structures
- *hp/zx1Makefile* – Makefile
- *hp/zx1/REAME.origin* - Source files in this directory are identical copies of linux-2.6.19 files
- *sn/Makefile* – Makefile
- *sn/kernel/machvec.c* - PLATFORM name and header structures
- *sn/kernel/Makefile* – Makefile
- *sn/kernel/pio_phys.asm* - This file contains macros used to access MMR registers via uncached physical addresses
- *sn/kernel/ptc_deadlock.asm* – Deadlock recovery routine
- *sn/kernel/README.origin* - Source files in this directory are identical copies of linux-2.6.19 files
- *sn/pci/Makefile* - Makefile
- *sn/pci/pcibr/Makefile* - Makefile
- *sn/pci/pcibr/pcibr_reg.c* – Register access functions
- *sn/pci/pcibar/README.origin* - Source files in this directory are identical copies of linux-2.6.19

Linux-xen Directory

The following files and directories are found at *\xen-3.4.0\xen\arch\ia64\linux-xen*

- acpi.c - Architecture-Specific Low-Level ACPI Support
- acpi_numa.c - ACPI NUMA support
- cmdline.c - Helper functions generally used for parsing kernel command line and module options.
- efi.c - Extensible Firmware Interface
- entry.h - Preserved registers that are shared between code in ivt.S and entry.S
- entry.asm - Kernel entry points.
- head.asm - When control is transferred to _start, the bootload has already loaded us to the correct address. All that's left to do here is to set up the kernel's global pointer and jump to the kernel entry point
- hpsim_ssc.h - Platform dependent support for HP simulator
- iosapic.c - I/O SAPIC support
- irq_ia64.c – 64 bit IRQ handler routines
- Makefile – Makefile
- mca.c - Generic MCA handling layer
- mca_asm.asm - assembly portion of the IA64 MCA handling
- minstate.h - For ivt.s we want to access the stack virtually so we don't have to disable translation on interrupts. On entry: r1: pointer to current task (ar.k6)
- mm_contig.c - Routines used by ia64 machines with contiguous (or virtually contiguous) memory.
- numa.c - ia64 kernel NUMA specific stuff
- perfmon.c - This file implements the perfmon-2 subsystem which is used to program the IA-64 Performance Monitoring Unit (PMU).
- perfmon_default_smpl.c - This file implements the default sampling buffer format for the Linux/ia64 perfmon-2 subsystem.
- perfmon_generic.h - This file contains the generic PMU register description tables and pmc checker used by perfmon.c.
- perfmon_itanium.h - This file contains the Itanium PMU register description tables and pmc checker used by perfmon.c
- perfmon_mckinley.h - This file contains the McKinley PMU register description tables and pmc checker used by perfmon.c
- perfmon_montecito.h - This file contains the Montecito PMU register description tables and pmc checker used by perfmon.c

- process-linux-xen.c - Architecture-specific setup
- Readme.origin - Source files in this directory are near-identical copies of linux-2.6.13
- sal.c - System Abstraction Layer (SAL) interface routines.
- setup.c - Architecture-specific setup.
- smp.c - SMP Support
- smpboot.c - SMP boot-related support
- sort.c - A fast, small, non-recursive O(nlog n) sort for the Linux kernel
- time.c - linux/arch/ia64/kernel/time.c
- tlb.c - TLB support routines.
- unaligned.c - Architecture-specific unaligned trap handling.
- unwind.c - This file implements call frame unwind support for the Linux kernel
- unwind_decoder.c – Generic IA-64 unwind info decoder.
- unwind_i.h – Kernel unwind support
- *sn/Makefile* – Makefile
- *sn/kernel/io_init.c* – Retrieve IO information
- *sn/kernel/iomv.c* – Port conversion routines
- *sn/kernel/irq.c* - Platform dependent support for SGI SN
- *sn/kernel/Makefile* – Makfile
- *sn/kernel/README.origin* - Source files in this directory are identical copies of linux-2.6.19 files
- *sn/kernel/setup.c* – Setup routines
- *sn/kernel/sn2_smp.c* - SN2 Platform specific SMP Support

Tools Directory

The following files and directories are found at *\xen-3.4.0\xen\arch\ia64\tools*

- linux-xen-diffs - generate a patch for all the files in linux-xen directories (these are files that are identical to linux except for a few small changes)
- README.RunVT - INSTRUCTIONS FOR Running IPF/Xen with VT-enabled Tiger4 pltform
- README.xenia64 - Recipe of Booting up Xen/dom0/domU on IA64 system
- README.xenoprof - This documents describes how to use xenoprof/ia64. See oprofile site for the details of oprofile itself
- sparse-merge - Generate a patch for each of the ia64 files in the linux-2.6-xen-sparse tree

- *p2m_expose/expose_p2m.c* -
- *p2m_expose/Makefile* – Makefile
- *p2m_expose/README.p2m_expose.p2m_expose* - This directory contains Linux kernel module for p2m exposure test/benchmark
- *privify/Makefile* – Makefile
- *privify/privify.c* - Binary translate privilege-sensitive ops to privileged
- *privify/privify.h* - Binary translate privilege-sensitive ops to privileged
- *privify/privify_elf64.c* - Binary translate privilege-sensitive ops to privileged
- *privify/README.privify* – Make instructions
- *privop/Makefile* – Makefile
- *privop/pohcalls.asm* – Assembly language support to reset priv_ops counts
- *privop/postat.c* – Reset priv_ops counts
- *xelilo/elilo.README* - Elilo update for Xen/ia64 HowTo
- *xelilo/xlilo.eli* -

Vmx Directory

The following files are found at *\xen-3.4.0\xen\arch\ia64\vmx*

- Makefile- Makefile
- mmio.c - MMIO emulation components
- optvfault.asm - Optimize virtualization fault handler
- pal_emul.c - PAL/SAL call delegation
- save.c - Save and restore HVM guest's emulated hardware state
- sioemu.c- Self IO emulation - hypercall and return
- vacpi.c - Emulation of the ACPI
- viosapic.c – viosapic function routines
- vlsapic.c - Virtual lsapic model including ITC timer
- vmmu.c - Virtual memory management unit components
- vmx_entry.asm – Entry assembler language routine
- vmx_fault.c - Handling VMX architecture-related VM exits
- vmx_hypercall.c - Handling hypercall from domain
- vmx_init.c - Initialization work for vt specific domain
- vmx_interrupt.c - Handle inject interruption

- vmx_ivt.asm - This file defines the interruption vector table used by the CPU.
- vmx_minstate.h -
- vmx_phy_mode.c - Emulating domain physical mode
- vmx_support.c - Vmx specific support interface
- vmx_utility.c – Reserved indirect registers
- vmx_vcpu.c - Handling all virtual cpu related thing
- vmx_vcpu_save.c – VMX CPU functions
- vmx_virt.c – IA64 Decoder function
- vmx_vsa.asm - Call PAL virtualization services
- vtlb.c - Guest virtual tlb handling module

Xen Directory

The following files and directories are found at *\xen-3.4.0\xen\arch\ia64\xen*

- crash.c – Machine crash shutdown routines
- dom0_ops.c - Process command requests from domain-0 guest OS.
- dom_fw_asm - Assembly support routines for Xen/ia64
- dom_fw_common.c - Xen domain firmware emulation support
- dom_fw_dom0.c - Xen domain firmware emulation support
- dom_fw_domu.c - Xen domain firmware emulation support
- dom_fw_sn2.c - Xen domain0 platform firmware fixups for sn2
- dom_fw_utils.c – Functions return setting values for Xen
- domain.c - Pentium III FXSR, SSE support
- faults.c - Miscellaneous process/domain related routines
- flushd.asm - Cache flushing routines
- flushtlb.c - Based on x86 flushtlb.c
- fw_emul.c – Spinlock routines
- gdbstuc.c - ia64-specific cdb routines
- hpsimserial.c - HP Ski simulator serial I/O
- hypercall.c - Hypercall implementations
- hyperprivop.asm -
- idle0_task.c - Initial task structure

- irq.c - IRQs are in fact implemented a bit like signal handlers for the kernel. Naturally it's not a 1:1 relation, but there are similarities.
- ivt.asm - This file defines the interruption vector table used by the CPU.
- machine_kexec.c - Based on arch/ia64/kernel/machine_kexec.c from Linux 2.6.20-rc1
- Makefile – Makefile
- mm.c - There are some shared structures which are accessed by CPUs concurrently
- mm_init.c - Initialize MMU support
- pcdp.c - Parse the EFI PCDP table to locate the console device
- pci.c - Low-Level PCI Access in IA-64
- platform_hypercall.c - Hardware platform operations. Intended for use by domain-0 kernel.
- privop.c - Privileged operation "API" handling functions
- privop_stat.c - Privileged operation instrumentation routines
- regionreg.c - Region register and region id management
- relocate_kernel.asm - Relocate kexec'able kernel and start it
- sn_console.c - C-Brick Serial Port (and console) driver for SGI Altix machines.
- tlb_track.c – tlb_track functions
- vcpu.c - Virtualized CPU functions
- vhpt.c - Initialize VHPT support
- xen.lds -
- xenasm.asm - Assembly support routines for Xen/ia64
- xenmem.c - Xen memory allocator routines
- xenmisc.c - Functions/decls that are/may be needed to link with Xen because of x86 dependencies
- xenpatch.c -
- xensetup.c -
- xentime.c – Timer routines
- *cpufreq\cpufreq.c - This file provides the ACPI based P-state support*
- *cpufreq\Makefile* - Makefile
- *oprofile\Makefile* - Makefile
- *oprofile\perfmon.c* - perfmon.c for xenoprof
- *oprofile\xenoprof.c* -

X86 Directory

The following files and directories are found at *\xen-3.4.0\xen\arch\x86*

- apic.c - Local APIC handling, local APIC timers
- bitops.c – Search for individual bits routines
- bzimage.c -
- clear_page.asm – Clear page memory
- compat.c - Implementations of legacy hypercalls. These call through to the new hypercall after doing necessary argument munging.
- copy_page.asm – Page copy assembly routine
- crash.c – CPU crash routines
- delay.c - Precise Delay Loops for i386
- dmi_scan.c – dmi_header routines
- domain.c - x86-specific domain handling (e.g., register setup and context switching).
- domain_build.c – Memory allocation for Dom0
- domctl.c - Arch-specific domctl.c
- e820.c - Sanitize the BIOS e820 map.
- extable.c – Exception routines
- fluhtlb.c - TLB flushes are timestamped using a global virtual 'clock' which ticks on any TLB flush on any processor.
- gdbstub.c - x86-specific gdb stub routines
- hpet.c - HPET management
- i387.c - Pentium III FXSR, SSE support
- i8259.c - Well, this is required for SMP systems as well, as it build interrupt tables for IO APICS as well as uniprocessor 8259-alikes.
- io_api.c - Intel IO-APIC support for multi-Pentium hosts
- ioport_emulate.c - Handle I/O port access quirks of various platforms
- irq.c – IRQ routines
- machine_kexec.c – Machine kexec routines
- Makefile – Makefile
- microcode.c - Intel CPU Microcode Update Driver for Linux
- microcodeamd.c - AMD CPU Microcode Update Driver for Linux
- microcode_intel.c - Intel CPU Microcode Update Driver for Linux

- mm.c - x86 page table API
- mpparse.c - Intel Multiprocessor Specification 1.1 and 1.4 compliant MP-table parsing routines.
- msi.c - PCI Message Signaled Interrupt (MSI)
- nmi.c - NMI watchdog support on APIC systems
- numa.c - Generic VM initialization for x86-64 NUMA setups.
- pci.c - Architecture-dependent PCI access functions.
- physdev.c -
- platform_hypercall.c - Hardware platform operations. Intended for use by domain-0 kernel.
- Rules.mk – Makefile rules
- setup.c -
- shutdown.c - x86-specific shutdown handling.
- smp.c - Intel SMP support routines
- smpboot.c - x86 SMP booting functions
- srat.c - ACPI 3.0 based NUMA setup
- string.c - These provide something for compiler-emitted string operations to link against.
- sysctl.c - System management operations. For use by node control stack.
- tboot.c -
- time.c - Per-CPU time calibration and management.
- trace.c -
- traps.c - Pentium III FXSR, SSE support
- usercopy.c - User address space access functions.
- x86_emulate.c - Wrapper for generic x86 instruction decoder and emulator

Acpi Directory

The following files and directories are found at *\xen-3.4.0\xen\arch\x86\acpi*

- boot.c - Architecture-Specific Low-Level ACPI Boot Support
- cpu_idle.c - xen idle state module derived from Linux drivers/acpi/processor_idle.c & arch/x86/kernel/acpi/cstate.c
- cpuidle_menu.c - menu governor for cpu idle, main idea come from Linux.
- Makefile – Makefile
- power.c - PM core functionality for Xen
- suspend.c – Processor state routines

- wakeup_prot.asm -
- *cpufreq\cpufreq.c*- ACPI Processor P-States Driver
- *cpufreq\Makefile* - Makefile
- *cpufreq\powernow.c*- AMD Architectural P-state Driver

Boot Directory

The following files are found at *\xen-3.4.0\xen\arch\x86\boot*

- build32.mk – Makefile information
- cmdline.asm - Early command-line parsing
- edd.asm - BIOS Enhanced Disk Drive support
- head.asm -
- Makefile – Makefile
- mem.asm – Get memory map
- mkelf32.c - onverts an Elf32 or Elf64 executable binary <in-image> into a simple Elf32 image <out-image> comprising a single chunk to be loaded at <load-base>.
- reloc.c - 32-bit flat memory-map routines for relocating Multiboot structures and modules. This is most easily done early with paging disabled.
- trampoline.asm -
- video.h – Video #defines
- video.asm - Display adapter & video mode setup
- wakeup.asm -
- x86_32.asm
- x86_64.asm

Cpu Directory

The following files are found at *\xen-3.4.0\xen\arch\x86\cpu*

- amd.c – CPUID Masking
- amd.h - AMD processor specific definitions
- centaur.c - Centaur Extended Feature Flags
- common.c – CPU information access
- cpu.h - struct cpu_model_info
- cyrix.c - Read NSC/Cyrix DEVID registers (DIR) to get more detailed info. about the CPU
- intel.c – Setup CPUID mask for Intel chips

- intel_cacheinfo.c - Routines to indentify caches on Intel CPU.
- Makefile – Makefile
- transmeta.c – Transmeta chipset
- *mcheck*
  - *amd_f10.c* - MCA implementation for AMD Family10 CPUs
  - *amd_k8.c* - MCA implementation for AMD K8 CPUs
  - *amd_nonfatal.c* - MCA implementation for AMD CPUs
  - *k7.c* - Athlon/Hammer specific Machine Check Exception Reporting
  - *Makefile* – Makefile
  - *mce.c* - x86 Machine Check Exception Reporting
  - *mce.h* – mce #defines
  - *mce_intel.c*- Below are for MCE handling
  - *mctelem.c* - x86 Machine Check Telemetry Transport
  - *mctelem.h* – mctelem.h #defines
  - *non-fatal.c* - Non Fatal Machine Check Exception Reporting
  - *p5.c*- P5 specific Machine Check Exception Reporting
  - *winchip.c* - IDT Winchip specific Machine Check Exception Reporting
  - *x86_mca.h* - MCA implementation for AMD K7/K8 CPUs
- *mtrr*
  - *amd.c* – mtrr routines for amd
  - *cyrix.c* – mtrr routines for cyrix
  - *generic.c* - This only handles 32bit MTRR on 32bit hosts. This is strictly wrong because MTRRs can span upto 40 bits (36bits on most modern x86)
  - *main.c*- Generic MTRR (Memory Type Range Register) driver.
  - *Makefile* - Makefile
  - *mtrr.h* – Local mtrr header files
  - *state.c* -

Genapic Directory

The following files are found at *\xen-3.4.0\xen\arch\x86\genapic*

- bigsmp.c
- default.c - Default generic APIC driver. This handles upto 8 CPUs.

- delivery.c - LOGICAL FLAT DELIVERY MODE (multicast via bitmask to <= 8 logical APIC IDs)
- Makefile – Makefile
- probe.c - Generic x86 APIC driver probe layer.
- summit.c - APIC driver for the IBM "Summit" chipset
- x2apic.c - x2APIC driver

Hvm Directory

The following directories and files are found at *\xen-3.4.0\xen\arch\x86\hvm*

- emulate.c - HVM instruction emulation. Used for MMIO and VMX real mode.
- hpet.c - HPET emulation for HVM guests
- hvm.c - Common hardware virtual machine abstractions
- i8254.c - QEMU 8253/8254 interval timer emulation
- intercept.c - Handle performance critical I/O packets in hypervisor space
- io.c - Handling I/O and interrupts
- irq.c - Interrupt distribution and delivery logic
- Makefile – Makefile
- mtrr.c - MTRR/PAT virtualization
- pmtimer.c - emulation of the ACPI PM timer
- rtc.c - QEMU MC146818 RTC emulation
- save.c - Save and restore HVM guest's emulated hardware state
- stdvga.c - This improves the performance of Standard VGA, the mode used during Windows boot and by the Linux splash screen.
- vioapic.c -
- viridian.c- An implementation of the Viridian hypercall interface
- vlapic.c - virtualize LAPIC for HVM vcpus
- vmsi.c - Support for virtual MSI logic Will be merged it with virtual IOAPIC logic, since most is the same
- vpic.c - i8259 interrupt controller emulation
- vpt.c - Virtual Platform Timer
- *svm*
    - *asid.c* - handling ASIDs in SVM.

- *emulate.c* - handling SVM emulate instructions help.
- *entry.asm* - SVM architecture-specific entry/exit handling.
- *intr.c*- Interrupt handling for SVM.
- *Makefile* - Makefile
- *svm.c* - handling SVM architecture-related VM exits
- *vmcb.c* - VMCB management

- *vmx*
  - *entry.asm* - VMX architecture-specific entry/exit handling.
  - *intr.c* - handling I/O, interrupts related VMX entry/exit
  - *Makefile* - Makefile
  - *realmode.c* - Real-mode emulation for VMX.
  - *vmcs.c* - VMCS management
  - *vmx.c* - handling VMX architecture-related VM exits
  - *vpmu.c* - PMU virtualization for HVM domain
  - *vpmu_core2.c* - CORE 2 specific PMU virtualization for HVM domain.

Mm Directory

The following directories and files are found at *\xen-3.4.0\xen\arch\x86\mm*

- guest_walk.c - Pagetable walker for guest memory accesses
- Makefile – Makefile
- p2m.c - Physical-to-machine mappings for automatically-translated domains.
- paging.c -x86 specific paging support
- *hap\guest_walk.c* - Guest page table walker
- *hap\hap.c* - hardware assisted paging
- *hap\Makefile* – Makefile
- *hap\p2m-ept.c* - ept-p2m.c: use the EPT page table as p2m
- *hap\private.h* – Guest translation function headers
- *shadow\common.c* - Shadow code that does not need to be multiply compiled.
- *shadow\Makefile* – Makefile
- *shadow\multi.c* - Simple, mostly-synchronous shadow page tables.
- *shadow\multi.h*- Shadow declarations which will be multiply compiled.

- *shadow\private.h* - Shadow code that is private, and does not need to be multiply compiled
- *shadow\types.h* – Shadow types definitions

Oprofile Directory

The following files are found at *\xen-3.4.0\xen\arch\x86\oprofile*

- backtrace.c – Hypervisor strack tracing
- Makefile – Makefile
- nmi_int.c -
- op_counter.h – Opcounter structure definitions
- op_model_athlon.c -
- op_model_p4.c
- op_model_ppro.c
- op_x86_model.h
- xenoprof.c

x86_32 Directory

The following files are found at *\xen-3.4.0\xen\arch\x86\x86_32*

- asm-offsets.c - Generate definitions needed by assembly language modules. This code generates raw asm output which is post-processed to extract and format the required data.
- domain_page.c - Allow temporary mapping of domain pages
- entry.asm - Hypercall and fault low-level handling routines
- gdbstub.c - x86-specific gdb stub routines
- gpr_switch.asm - GPR context switch between host and guest. Used by IO-port-access emulation stub.
- machine_kexec.c – machine_kexec_get_xen function
- Makefile – Makefile
- mm.c – Memory management routines
- seg_fixup.c - Support for -ve accesses to pseudo-4GB segments
- supervisor_mode_kernel.asm - Handle stack fixup for guest running in RING 0.
- traps.c - Print Xen data and reset callbacks
- xen.lds - ld script to make i386 Linux kernel

x86_64 Directory

The following directory and files are found at *\xen-3.4.0\xen\arch\x86\x86_64*

- asm-offsets.c - Generate definitions needed by assembly language modules.This code generates raw asm output which is post-processed to extract and format the required data.
- compat.c - #Define definitions
- compat_kexec.asm - Compatibility kexec handler
- cpu_idel.c - Adapt x86/acpi/cpu_idle.c to compat guest
- cpufreq.c - Adapt 32b compat guest to 64b hypervisor
- domain.c – arch_compat_vcpu_op function code
- entry.asm - Hypercall and fault low-level handling routines.
- gdbstub.c - x86_64 -specific gdb stub routines
- gpr_switch.asm - GPR context switch between host and guest. Used by IO-port-access emulation stub.
- machine_kexec.c – machine_kexec_get_xen function code
- Makefile – Makefile
- mm.c – Memory table mappings and allocation
- physdev.c - #Define headers
- platform_hypercall.c - #Define headers
- traps.c – Print Xen data and reset callbacks
- xen.lsd - ld script to make 64 Linux kernel
- *compat\entry.asm* - Compatibility hypercall routines
- *compat\Makefile* - Makefile
- *compat\mm.c* – Memory operations
- *compat\traps.c* – Print Xen data and reset callbacks

x86_emulate Directory

The following files are found at *\xen-3.4.0\xen\arch\x86\x86_emulate*

- x86_emulate.c - Generic x86 (32-bit and 64-bit) instruction decoder and emulator
- x86_emulate.h - Generic x86 (32-bit and 64-bit) instruction decoder and emulator header files

Common Directory

The following files and directories are found at *\xen-3.4.0\xen\common*

- bitmap.c - Helper functions for bitmap.h

- domain.c - Generic domain-handling functions (start, stop, pause, etc)
- domctl.c - Domain management operations. For use by node control stack.
- event_channel.c - Event notifications from VIRQs, PIRQs, and other domains.
- gdbstub.c - Implements the architecture independent parts of the gdb remote protocol
- grant_table.c - Mechanism for granting foreign access to page frames, and receiving page-ownership transfers
- inflate.c - Inflate deflated (PKZIP's method 8 compressed) data.
- kernel.c -
- kexec.c - Architecture independent kexec code for Xen
- keyhandler.c -
- lib.c - A couple of 64 bit operations ported from FreeBSD
- Makefile - Makefile
- memory.c - Code to handle memory-related requests.
- multicall.c -
- page_alloc.c - Simple buddy heap allocator for Xen
- perfc.c – Performance counters functions
- rangeset.c - Creation, maintenance and automatic destruction of per-domain sets of numeric ranges
- rcupdate.c - Read-Copy Update mechanism for mutual exclusion
- sched_credit.c - Credit-based SMP CPU scheduler
- sched_sedf.c - Simple EDF scheduler for xen
- schedule.c - eneric CPU scheduling code implements support functionality for the Xen scheduler API.
- shutdown.c – Code to shutdown Domain0
- softirq.c - Softirqs in Xen are only executed in an outermost activation (e.g., never within an interrupt activation)
- spinlock.c – Spinlock functions
- stop_machine.c - Facilities to put whole machine in a safe 'stop' state
- string.c – String library functions
- symbols.c - In-kernel printing of symbolic oopses and stack traces.
- symbols-dummy.c - dummy symbol-table definitions for the inital partial link of the hypervisor image.
- sysctl.c - System management operations. For use by node control stack.

- time.c – Time and date functions
- timer.c – Timer functions
- trace.c - The trace buffer code is designed to allow debugging traces of Xen to be generated on UP / SMP machines. Each trace entry is timestamped so that it's possible to reconstruct a chronological record of trace events.
- version.c – Xen version number based on compile, date, etc.
- vsprintf.c – String conversion routines
- xencomm.c – Page memory communication b/w guests
- xenoprof.c - arch generic xenoprof and IA64 support. Dynamic map/unmap xenoprof buffer support
- xmalloc_tlsf.c - Two Levels Segregate Fit memory allocator (TLSF)

Compat Directory

The following files are found at *\xen-3.4.0\xen\common\compat*

- domain.c – Virtual CPU timer functions
- grant_table.c – Grant Table structures and functions
- kernel.c – Series of Xen #defines
- Makefile – Makefile
- memory.c – Memory operations
- multicall.c - #define multicall function settings
- schedule.c - #define schedule function settings
- xenoprof.c - #define xenoprof function settings
- xlat.c – Translation functions

Hvm Directory

The following files are found at *\xen-3.4.0\xen\common\hvm*

- Makefile - Makefile
- save.c - Save and restore HVM guest's emulated hardware state.

Libelf Directory

The following files are found at *\xen-3.4.0\xen\common\libelf*

- libelf-dominfo.c - Parse xen-specific informations out of elf kernel binaries
- libelf-loader.c - Parse and load elf binaries

- libelf-private.h – ELF structure and definitions
- libelf-relocate.c - ELF relocation code (not used by xen kernel right now)
- libelf-tools.c - Various helper functions to access elf structures
- Makefile – Makefile
- README – “code is used by xen and tools”

Crypto Directory

The following files are found at *\xen-3.4.0\xen\crypto*

- Makefile – Makefile
- rijndael.c - Optimised ANSI C code for the Rijndael cipher (now AES)
- vmac.c - VMAC and VHASH Implementation

Drivers Directory

The following files and directories are found at *\xen-3.4.0\xen\drivers*

- Makefile - Makefile

Acpi Directory

The following files and directories are found at *\xen-3.4.0\xen\drivers\acpi*

- hwregs.c - Read/write access functions for the various ACPI control and status registers
- Makefile - Makefile
- numa.c - ACPI NUMA support
- osl.c - OS-dependent functions
- pmstat.c - Power Management statistic information (Px/Cx/Tx, etc.)
- reboot.c – Reboot function call
- tables.c - ACPI Boot-Time Table Parsing

Tables Directory

The following files are found at *\xen-3.4.0\xen\drivers\acpi\tables*

- Makefile- Makefile
- tbfadt.c - FADT table utilities
- tbinstal.c - ACPI table installation and removal
- tbutils.c - Table utilities
- tbxface.c - Public interfaces to the ACPI subsystem

- tbxfroot.c - Find the root ACPI table (RSDT)

Utilities Directory

The following files are found at *\xen-3.4.0\xen\drivers\acpi\utilities*

- Makefile - Makefile
- utglobal.c - Global variables for the ACPI subsystem
- utmisc.c - Common utility procedures

Char Directory

The following files are found at *\xen-3.4.0\xen\drivers\char*

- console.c - Emergency console I/O for Xen and the domain-0 guest OS
- Makefile – Makefile
- ns16550.c - Driver for 16550-series UARTs. This driver is to be kept within Xen as it permits debugging of seriously-toasted machines
- serial.c - Framework for serial device drivers

CpuFreq Directory

The following files are found at *\xen-3.4.0\xen\drivers\cpufreq*

- cpufreq.c -
- cpufreq_misc_governors.c
- cpufreq_ondemand.c
- Makefile - Makefile
- utility.c - Misc functions for cpufreq driver and Px statistic

Passthrough Directory

The following files and directories are found at *\xen-3.4.0\xen\drivers\passthrough*

- io.c
- iommu.c - The 'iommu' parameter enables the IOMMU and functions associated
- Makefile- Makefile
- pci.c -

Amd Directory

The following files and directories are found at *\xen-3.4.0\xen\drivers\passthrough\amd*

- iommu_acpi.c – IOMMU updates for AMD processors

- iommu_detect.c
- iommu_init.c
- iommu_intr.c
- iommu_map.c
- Makefile
- pci_amd_iommu.c

Vtd Directory

The following files and directories are found at *\xen-3.4.0\xen\drivers\passthrough\vtd*

- dmar.c
- dmar.h
- extern.h
- intremap.c
- iommu.c
- iommu.h
- Makefile
- qinval.c
- utils.c
- vtd.c
- ia64\vtd.c
- ia64\Makefile
- x86\vtd.c
- x86\Makefile

Pci Directory

The following files are found at *\xen-3.4.0\xen\drivers\pci*

- Makefile - Makefile
- pci.c - Architecture-independent PCI access functions

Video Directory

The following files and directories are found at *\xen-3.4.0\xen\drivers\video*

- font.h – Font structure headers

- font_8x8.c - Font file generated by cpi2fnt
- font_8x14.c- Font file generated by cpi2fnt
- font_8x16.c - Font file generated by cpi2fnt
- Makefile - Makefile
- vesa.c - VESA linear frame buffer handling
- vga.c - VGA support routines

Include Directory

The following files and directories are found at *\xen-3.4.0\xen\include*

- Makefile - Makefile
- Xlat.lst - LST files are typically plain text files, which can be viewed and edited with a text editor

Acpi Directory

The following files and directories are found at *\xen-3.4.0\xen\include\acpi*

- acconfig.h - Global configuration constants
- acexcep.h - Exception codes returned by the ACPI subsystem
- acglobal.h - Declarations for global variables
- achware.h - Hardware specific interfaces
- aclocal.c - Internal data types used across the ACPI subsystem
- acmacros.h - C macros for the entire subsystem
- acnames.h - Global names and strings
- acnamesp.h - Namespace subcomponent prototypes and defines
- acobject.h - Definition of union acpi_operand_object (Internal object only)
- acoutput.h - Debug output
- acpi.h - Master include file, Publics and external data
- acpi_bus.h - ACPI Bus Driver
- acpi_drivers.h – ACPI Driver
- acpiosxf.h - All interfaces to the OS Services Layer (OSL)
- acstruct.h - Internal structs
- actables.h - ACPI table management
- actbl.h - Basic ACPI Table Definitions

- actbl1.h - Additional ACPI table definitions
- actypes.h - Common data types for the entire ACPI subsystem
- acutils.h - Prototypes for the common (subsystem-wide) procedures
- pdc_intel.h - PDC bit definition for Intel processors

Cpufreq Directory

The following files are found at *\xen-3.4.0\xen\include\acpi\cpufreq*

- cpufreq.h – CPU Frequency headers
- processor_perf.h – Processor structures and headers

Platform Directory

The following files are found at *\xen-3.4.0\xen\include\acpi\platform*

- acenv.h - Generation environment specific items
- acgcc.h - GCC specific defines, etc.
- aclinux.h - OS specific defines, etc

Asm-ia64 Directory

Asm-x86 Directory

Crypto Directory

The following files are found at *\xen-3.4.0\xen\include\acpi\crypto*

- rijndael.h - Optimised ANSI C headers for the Rijndael cipher (now AES)
- vmac.h - VMAC and VHASH Implementation Headers

Public Directory

Xen Directory

Xsm Directory

The following files and directory are found at *\xen-3.4.0\xen\include\xsm*

- xsm.h - This file contains the XSM hook definitions for Xen.

Acm Directory

The following files are found at *\xen-3.4.0\xen\include\xsm\acm*

- acm_core.h - sHype header file describing core data types and constants for the access control module and relevant policies
- acm_endian.h - sHype header file describing core data types and constants for the access control module and relevant policies
- acm_hooks.h - sHype header file describing core data types and constants for the access control module and relevant policies

Tools Directory

The following files and directories are found at *\xen-3.4.0\xen\tools*

- compat-build-header.py
- compat-build-source.py
- get-fields.sh
- Makefile- Makefile
- symbols.c

Figlet Directory

The following files are fount at *\xen-3.4.0\xen\tools\figlet*

- figlet.c
- LICENSE
- Makefile – Makefile
- README
- xen.flf

Xsm Directory

The following files and directories are found at *\xen-3.4.0\xen\xsm.* This work is based on the LSM implementation in Linux 2.6.13.4

- dummy.c – Various funciton calls return 0
- Makefile - Makefile
- xsm_core.c – Various xsm function calls
- xsm_policy.c -

Acm Directory

The following files are found at *\xen-3.4.0\xen\xsm\acm*

- acm_chinesewall_hooks.c - his code implements the hooks that are called throughout Xen operations and decides authorization based on domain types and Chinese Wall conflict type sets.
- acm_core.c - This file handles initialization of the ACM as well as initializing/freeing security identifiers for domains
- acm_null_hooks.c -
- acm_ops.c - Process acm command requests from guest OS
- acm_policy.c - access control policy management for Xen. This interface allows policy tools in authorized domains to interact with the Xen access control module
- acm_simple_type_enforacment_hooks.c - Simple Type Enforcement for Xen; STE allows to control which domains can setup sharing (eventchannels right now) with which other domains
- acm_xem_hooks.c - Hooks for XSM based on the original ACM hooks
- Makefile- Makefile

Flask Directory

The following files and directories are found at *\xen-3.4.0\xen\xsm\flask*

- avc.c - Implementation of the kernel access vector cache (AVC)
- flask_op.c - This file contains the flask_op hypercall and associated functions
- hooks.c - This file contains the Flask hook function implementations for Xen.
- Makefile - Makefile

Include Directory

The following files are found at *\xen-3.4.0\xen\xsm\flask\include*

- av_inherit.h
- av_perm_to_string.h
- av_permissions.h
- avc.h
- avc_ss.h
- class_to_string.h
- common_perm_to_string.h
- conditional.h
- flask.h

- initial_sid_to_string.h
- objsec.h
- security.h

Ss Directory

The following files are found at *\xen-3.4.0\xen\xsm\flask\ss*

- avtab.c
- avtab.h
- conditional.c
- conditional.h
- constraint.h
- context.h
- ebitmap.c
- ebitmap.h
- hashtab.c
- hashtab.h
- Makefile
- mls.c
- mls.h
- mis_types.h
- policydb.c
- policydb.h
- services.c
- services.h
- sidtab.c
- sidtab.h
- symtab.c
- symtab.h