

Pengrix Enterprise Edition

성능 테스트 절차서

한국소프트웨어진흥원
공개SW기술지원센터

<Revision 정보>

일자	VERSION	변경내역	작성자
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1. 문서 개요

본 문서는 네트워크를 통해 접속한 여러 사용자가 Pengrix Enterprise가 설치된 아시아눅스 2.0 서버에서 여러 OS와 소프트웨어를 사용할 수 있는 서비스를 제공하는 솔루션의 성능 검증을 중심으로 테스트하여, 관련 솔루션 업체의 참고자료 활용을 위해 제작되었다.

가. 문서의 목적

다음과 같은 세부적인 목적을 달성하기 위하여 작성되었다.

- 리눅스 솔루션 Pengrix Enterprise Edition + AsiaNux 2.0 호환 결과
- 리눅스 솔루션 Pengrix Enterprise Edition + AsiaNux 2.0 성능 결과
 - Host OS인 Asianux2.0과 Guest(가상) OS인 Debian4.0(etch)과의 압축 성능 비교
 - Host OS인 Asianux2.0과 Guest(가상) OS인 Debian4.0(etch)과의 인코딩 성능 비교
 - Host OS인 Asianux2.0과 Guest(가상) OS인 Debian4.0(etch)과의 파일 쓰기 성능 비교
 - Host OS인 Asianux2.0과 Guest(가상) OS인 Debian4.0(etch)과의 파일 복사 성능 비교
 - Host OS인 Asianux2.0과 Guest(가상) OS인 Debian4.0(etch)과의 정수 연산 성능 비교
 - Host OS인 Asianux2.0과 Guest(가상) OS인 Debian4.0(etch)과의 부동소숫점 연산 성능 비교
- 진행 중 문제 발생 사항과 각각의 진행사항

나. 본 문서의 사용방법

다음과 같은 방법으로 사용할 수 있다.

- 리눅스 솔루션 Pengrix Enterprise Edition + AsiaNux 2.0 환경의 호환 결과를 확인한다.
- 리눅스 솔루션 Pengrix Enterprise Edition + AsiaNux 2.0 환경의 성능 결과를 아래와 같이 확인할 수 있다.
 - Host OS인 Asianux2.0과 Guest(가상) OS인 Debian4.0(etch)과의 압축 성능 비교
 - Host OS인 Asianux2.0과 Guest(가상) OS인 Debian4.0(etch)과의 인코딩 성능 비교
 - Host OS인 Asianux2.0과 Guest(가상) OS인 Debian4.0(etch)과의 파일 쓰기 성능 비교
 - Host OS인 Asianux2.0과 Guest(가상) OS인 Debian4.0(etch)과의 파일 복사 성능 비교
 - Host OS인 Asianux2.0과 Guest(가상) OS인 Debian4.0(etch)과의 정수 연산 성능 비교
 - Host OS인 Asianux2.0과 Guest(가상) OS인 Debian4.0(etch)과의 부동소숫점 연산 성능 비교

2. 테스트 절차 내역

이하의 내용은 성능 테스트 결과와 문제 발생 사항, 진행사항을 기술한다.

가. 압축 성능 테스트

단계	항목/시험/결과	
1	시험항목	gzip compression test
	시험절차	time gzip -c pengrix_linux_bench.tar > /dev/null
	시험결과	<pre>[root@localhost ~]# time gzip -c pengrix_linux_bench.tar > /dev/null real 0m35.328s user 0m35.303s sys 0m35.026s</pre>
	비고	<p>pengrix_linux_bench.tar 파일 크기 : 489MB</p> <p>Host OS와 Guest OS에서 각각 3번씩 테스트하여 중간기록 채택</p>

나. 인코딩 성능 테스트

단계	항목/시험/결과	
1	시험항목	LAME 인코딩 프로그램 설치
	시험절차	① 다운로드 : wget http://downloads.sourceforge.net/lame/lame-3.97.tar.gz?modtime=1159107882&big_mirror=0 ② 압축해제 : tar xvfz lame-3.97.tar.gz ③ 컴파일 : ./configure, make
	시험결과	① 다운로드 <pre> [root@localhost ~]# wget http://downloads.sourceforge.net/lame/lame-3.97.tar.gz?modtime=1159107882&big_mirror=0 [1] 10702 [root@localhost ~]# --12:52:06-- http://downloads.sourceforge.net/lame/lame-3.97.tar.gz?modtime=1159107882 => `lame-3.97.tar.gz?modtime=1159107882' Resolving downloads.sourceforge.net... 66.35.250.203 Connecting to downloads.sourceforge.net 66.35.250.203 :80... connected. HTTP request sent, awaiting response... 302 Found Location: http://jaist.dl.sourceforge.net/sourceforge/lame/lame-3.97.tar.gz [following] --12:52:07-- http://jaist.dl.sourceforge.net/sourceforge/lame/lame-3.97.tar.gz => `lame-3.97.tar.gz' Resolving jaist.dl.sourceforge.net... 150.65.7.130 Connecting to jaist.dl.sourceforge.net 150.65.7.130 :80... connected. HTTP request sent, awaiting response... 200 OK Length: 1,328,058 (1.3M) [application/x-gzip] 100%[===== =====>] 1,328,058 49.01K/s ETA 00:00 12:52:26 (72.73 KB/s) - `lame-3.97.tar.gz' saved [1328058/1328058] [1]+ Done wget http://downloads.sourceforge.net/lame/lame-3.97.tar.gz?modtime=1159107882 </pre> ② 압축해제 <pre> [root@localhost ~]# tar xvfz lame-3.97.tar.gz lame-3.97/ lame-3.97/mac/ </pre>

	lame-3.97/mac/Precompile_Common.h lame-3.97/mac/MacDLLMain.c lame-3.97/mac/LAME_Classic_Final.pch lame-3.97/mac/LAME_Classic_Debug.pch lame-3.97/mac/LAME_Carbon_Final.pch lame-3.97/mac/LAME_Carbon_Debug.pch lame-3.97/mac/LAME.mcp lame-3.97/mac/.DS_Store lame-3.97/mac/Makefile.in lame-3.97/mac/Makefile.am lame-3.97/ACM/ lame-3.97/ACM/tinyxml/ lame-3.97/ACM/tinyxml/xmltest.cpp lame-3.97/ACM/tinyxml/tinyxmlparser.cpp lame-3.97/ACM/tinyxml/tinyxmlerror.cpp lame-3.97/ACM/tinyxml/tinyxml.h lame-3.97/ACM/tinyxml/tinyxml_vc7.vcproj lame-3.97/ACM/tinyxml/tinyxml.dsp lame-3.97/ACM/tinyxml/tinyxml.cpp lame-3.97/ACM/tinyxml/test.dsw lame-3.97/ACM/tinyxml/test.dsp lame-3.97/ACM/tinyxml/readme.txt lame-3.97/ACM/tinyxml/makedistwin.bat lame-3.97/ACM/tinyxml/makedistlinux lame-3.97/ACM/tinyxml/dox lame-3.97/ACM/tinyxml/changes.txt lame-3.97/ACM/tinyxml/Makefile.tinyxml lame-3.97/ACM/tinyxml/Makefile.in lame-3.97/ACM/tinyxml/Makefile.am lame-3.97/ACM/ddk/ lame-3.97/ACM/ddk/msacmdrv.h lame-3.97/ACM/ddk/Makefile.in lame-3.97/ACM/ddk/Makefile.am lame-3.97/ACM/ADbg/ lame-3.97/ACM/ADbg/ADbg.h lame-3.97/ACM/ADbg/ADbg_vc7.vcproj lame-3.97/ACM/ADbg/ADbg.dsp lame-3.97/ACM/ADbg/ADbg.cpp lame-3.97/ACM/ADbg/Makefile.in lame-3.97/ACM/ADbg/Makefile.am lame-3.97/ACM/resource.h lame-3.97/ACM/readme.txt lame-3.97/ACM/main.cpp
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	lame-3.97/ACM/lame_acm.xml lame-3.97/ACM/lameACM_vc7.vcproj lame-3.97/ACM/lameACM_vc6.dsp lame-3.97/ACM/lameACM.def lame-3.97/ACM/lame.ico lame-3.97/ACM/adebug.h lame-3.97/ACM/acm.rc lame-3.97/ACM/LameACM.inf lame-3.97/ACM/DecodeStream.h lame-3.97/ACM/DecodeStream.cpp lame-3.97/ACM/AEncodeProperties.h lame-3.97/ACM/AEncodeProperties.cpp lame-3.97/ACM/ACMStream.h lame-3.97/ACM/ACMStream.cpp lame-3.97/ACM/ACM.h lame-3.97/ACM/ACM.cpp lame-3.97/ACM/TODO lame-3.97/ACM/Makefile.in lame-3.97/ACM/Makefile.am lame-3.97/dshow/ lame-3.97/dshow/resource.h lame-3.97/dshow/iaudioprops.h lame-3.97/dshow/elogo.ico lame-3.97/dshow/dshow.dsw lame-3.97/dshow/dshow.dsp lame-3.97/dshow/aboutprp.h lame-3.97/dshow/aboutprp.cpp lame-3.97/dshow/UIDS.H lame-3.97/dshow/REG.H lame-3.97/dshow/REG.CPP lame-3.97/dshow/Property.rc lame-3.97/dshow/PropPage_adv.h lame-3.97/dshow/PropPage_adv.cpp lame-3.97/dshow/PropPage.h lame-3.97/dshow/PropPage.cpp lame-3.97/dshow/Mpegac.h lame-3.97/dshow/Mpegac.def lame-3.97/dshow/Mpegac.cpp lame-3.97/dshow/Encoder.h lame-3.97/dshow/Encoder.cpp lame-3.97/dshow/Makefile.in lame-3.97/dshow/Makefile.am lame-3.97/dshow/README
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	lame-3.97/misc/ lame-3.97/misc/mlame_corr.c lame-3.97/misc/lame4dos.bat lame-3.97/misc/lameGUI.html lame-3.97/misc/Lame.vbs lame-3.97/misc/mlame lame-3.97/misc/mugeco.sh lame-3.97/misc/lameid3.pl lame-3.97/misc/auenc lame-3.97/misc/scalartest.c lame-3.97/misc/ath.c lame-3.97/misc/abx.c lame-3.97/misc/depcomp lame-3.97/misc/Makefile.in lame-3.97/misc/Makefile.am lame-3.97/include/ lame-3.97/include/Makefile.in lame-3.97/include/Makefile.am lame-3.97/include/lame.h lame-3.97/doc/ lame-3.97/doc/man/ lame-3.97/doc/man/lame.1 lame-3.97/doc/man/Makefile.in lame-3.97/doc/man/Makefile.am lame-3.97/doc/html/ lame-3.97/doc/html/switchs.html lame-3.97/doc/html/presets.html lame-3.97/doc/html/node6.html lame-3.97/doc/html/modes.html lame-3.97/doc/html/lame.css lame-3.97/doc/html/index.html lame-3.97/doc/html/id3.html lame-3.97/doc/html/history.html lame-3.97/doc/html/examples.html lame-3.97/doc/html/contributors.html lame-3.97/doc/html/basic.html lame-3.97/doc/html/Makefile.in lame-3.97/doc/html/Makefile.am lame-3.97/doc/Makefile.in lame-3.97/doc/Makefile.am lame-3.97/Debian4.0/ lame-3.97/Debian4.0/rules lame-3.97/Debian4.0/lame.files
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	lame-3.97/Debian4.0/lame.docs lame-3.97/Debian4.0/libmp3lame0.files lame-3.97/Debian4.0/libmp3lame0-dev.files lame-3.97/Debian4.0/libmp3lame0-dev.docs lame-3.97/Debian4.0/copyright lame-3.97/Debian4.0/control lame-3.97/Debian4.0/changelog lame-3.97/Debian4.0/Makefile.in lame-3.97/Debian4.0/Makefile.am lame-3.97/Dll/ lame-3.97/Dll/Makefile.mingw32 lame-3.97/Dll/MP3export.pas lame-3.97/Dll/LameDll_vc7.vcproj lame-3.97/Dll/LameDll_vc6.dsp lame-3.97/Dll/LameDLLInterface.htm lame-3.97/Dll/Example_vc6.dsw lame-3.97/Dll/Example_vc6.dsp lame-3.97/Dll/Example.cpp lame-3.97/Dll/BladeMP3EncDLL.h lame-3.97/Dll/BladeMP3EncDLL.def lame-3.97/Dll/BladeMP3EncDLL.c lame-3.97/Dll/Makefile.in lame-3.97/Dll/Makefile.am lame-3.97/Dll/README lame-3.97/frontend/ lame-3.97/frontend/amiga_mpega.c lame-3.97/frontend/mp3x_vc7.vcproj lame-3.97/frontend/mp3x_vc6.dsp lame-3.97/frontend/lame_vc7.vcproj lame-3.97/frontend/lame_vc6.dsp lame-3.97/frontend/console.h lame-3.97/frontend/console.c lame-3.97/frontend/gpkplotting.c lame-3.97/frontend/gtkanal.c lame-3.97/frontend/mp3x.c lame-3.97/frontend/rtp.h lame-3.97/frontend/rtp.c lame-3.97/frontend/mp3rtp.c lame-3.97/frontend/brhist.h lame-3.97/frontend/brhist.c lame-3.97/frontend/timestatus.c lame-3.97/frontend/portableio.c lame-3.97/frontend/parse.c
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	lame-3.97/frontend/lametime.c lame-3.97/frontend/get_audio.c lame-3.97/frontend/main.c lame-3.97/frontend/depcomp lame-3.97/frontend/Makefile.in lame-3.97/frontend/Makefile.am lame-3.97/frontend/timestatus.h lame-3.97/frontend/portableio.h lame-3.97/frontend/parse.h lame-3.97/frontend/main.h lame-3.97/frontend/lametime.h lame-3.97/frontend/gpplotting.h lame-3.97/frontend/gtkanal.h lame-3.97/frontend/get_audio.h lame-3.97/libmp3lame/ lame-3.97/libmp3lame/i386/ lame-3.97/libmp3lame/i386/fftbl.nas lame-3.97/libmp3lame/i386/fftsse.nas lame-3.97/libmp3lame/i386/fftfpu.nas lame-3.97/libmp3lame/i386/fft.nas lame-3.97/libmp3lame/i386/fft3dn.nas lame-3.97/libmp3lame/i386/cpu_feat.nas lame-3.97/libmp3lame/i386/choose_table.nas lame-3.97/libmp3lame/i386/Makefile.in lame-3.97/libmp3lame/i386/Makefile.am lame-3.97/libmp3lame/i386/nasm.h lame-3.97/libmp3lame/libmp3lame_vc7.vcproj lame-3.97/libmp3lame/libmp3lame_vc6.dsp lame-3.97/libmp3lame/mpglib_interface.c lame-3.97/libmp3lame/version.c lame-3.97/libmp3lame/vbrquantize.c lame-3.97/libmp3lame/util.c lame-3.97/libmp3lame/takehiro.c lame-3.97/libmp3lame/tables.c lame-3.97/libmp3lame/set_get.c lame-3.97/libmp3lame/reservoir.c lame-3.97/libmp3lame/quantize_pvt.c lame-3.97/libmp3lame/quantize.c lame-3.97/libmp3lame/psymodel.c lame-3.97/libmp3lame/presets.c lame-3.97/libmp3lame/newmdct.c lame-3.97/libmp3lame/lame.c lame-3.97/libmp3lame/id3tag.c
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	lame-3.97/libmp3lame/gain_analysis.c lame-3.97/libmp3lame/fft.c lame-3.97/libmp3lame/encoder.c lame-3.97/libmp3lame/bitstream.c lame-3.97/libmp3lame/VbrTag.c lame-3.97/libmp3lame/depcomp lame-3.97/libmp3lame/Makefile.in lame-3.97/libmp3lame/Makefile.am lame-3.97/libmp3lame/version.h lame-3.97/libmp3lame/vbrquantize.h lame-3.97/libmp3lame/util.h lame-3.97/libmp3lame/tables.h lame-3.97/libmp3lame/set_get.h lame-3.97/libmp3lame/reservoir.h lame-3.97/libmp3lame/quantize_pvt.h lame-3.97/libmp3lame/quantize.h lame-3.97/libmp3lame/psymodel.h lame-3.97/libmp3lame/newmdct.h lame-3.97/libmp3lame/machine.h lame-3.97/libmp3lame/lame_global_flags.h lame-3.97/libmp3lame/lame-analysis.h lame-3.97/libmp3lame/l3side.h lame-3.97/libmp3lame/id3tag.h lame-3.97/libmp3lame/gain_analysis.h lame-3.97/libmp3lame/fft.h lame-3.97/libmp3lame/encoder.h lame-3.97/libmp3lame/bitstream.h lame-3.97/libmp3lame/VbrTag.h lame-3.97/mpglib/ lame-3.97/mpglib/mpglib_vc7.vcproj lame-3.97/mpglib/mpglib_vc6.dsp lame-3.97/mpglib/tabinit.c lame-3.97/mpglib/layer3.c lame-3.97/mpglib/layer2.c lame-3.97/mpglib/layer1.c lame-3.97/mpglib/interface.c lame-3.97/mpglib/decode_i386.c lame-3.97/mpglib/dct64_i386.c lame-3.97/mpglib/common.c lame-3.97/mpglib/depcomp lame-3.97/mpglib/TODO lame-3.97/mpglib/Makefile.in lame-3.97/mpglib/Makefile.am
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	lame-3.97/mpglib/tabinith.h lame-3.97/mpglib/mpglib.h lame-3.97/mpglib/mpg123.h lame-3.97/mpglib/layer3.h lame-3.97/mpglib/layer2.h lame-3.97/mpglib/layer1.h lame-3.97/mpglib/l2tables.h lame-3.97/mpglib/interface.h lame-3.97/mpglib/huffman.h lame-3.97/mpglib/decode_i386.h lame-3.97/mpglib/dct64_i386.h lame-3.97/mpglib/common.h lame-3.97/mpglib/README lame-3.97/testcase.wav lame-3.97/testcase.mp3 lame-3.97/lame_vc7.sln lame-3.97/lame_vc6.dsw lame-3.97/lame_projects_vc6.dsp lame-3.97/lame.spec lame-3.97/lame.bat lame-3.97/configMS.h lame-3.97/USAGE lame-3.97/STYLEGUIDE lame-3.97/README.WINGTK lame-3.97/Makefile.unix lame-3.97/Makefile.MSVC lame-3.97/LICENSE lame-3.97/INSTALL.configure lame-3.97/HACKING lame-3.97/DEFINES lame-3.97/API lame-3.97/mkinstalldirs lame-3.97/missing lame-3.97/ltmain.sh lame-3.97/ltconfig lame-3.97/install-sh lame-3.97/depcomp lame-3.97/config.sub lame-3.97/config.guess lame-3.97/TODO lame-3.97/INSTALL lame-3.97/ChangeLog lame-3.97/COPYING
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	<pre> lame-3.97/configure lame-3.97/Makefile.am.global lame-3.97/lame.spec.in lame-3.97/config.h.in lame-3.97/Makefile.in lame-3.97/Makefile.am lame-3.97/aclocal.m4 lame-3.97/configure.in lame-3.97/acinclude.m4 lame-3.97/README [root@localhost ~]# </pre>
	<p>③ 컴파일</p> <pre> [root@localhost ~]# cd lame-3.97 [root@localhost lame-3.97]# ls ACM INSTALL Makefile.unix aclocal.m4 Debian4.0 lame.bat ltconfig testcase.mp3 API INSTALL.configure README config.guess depcomp lame.spec ltmain.sh testcase.wav COPYING LICENSE README.WINGTK config.h.in doc lame.spec.in mac ChangeLog Makefile.MSVC STYLEGUIDE config.sub dshow lame_projects_vc6.dsp misc DEFINES Makefile.am TODO configMS.h frontend lame_vc6.dsw missing Dll Makefile.am.global USAGE configure include lame_vc7.sln mkinstalldirs HACKING Makefile.in acinclude.m4 configure.in install-sh libmp3lame mpglib [root@localhost lame-3.97]# ./configure checking build system type... x86_64-unknown-linux-gnu checking host system type... x86_64-unknown-linux-gnu checking for a BSD-compatible install... /usr/bin/install -c checking whether build environment is sane... yes checking for gawk... gawk checking whether make sets \$(MAKE)... yes checking whether to enable maintainer-specific portions of Makefiles... no checking for style of include used by make... GNU checking for gcc... gcc checking for C compiler default output file name... a.out checking whether the C compiler works... yes checking whether we are cross compiling... no </pre>

	<pre> checking for suffix of executables... checking for suffix of object files... o checking whether we are using the GNU C compiler... yes checking whether gcc accepts -g... yes checking for gcc option to accept ANSI C... none needed checking dependency style of gcc... gcc3 checking how to run the C preprocessor... gcc -E checking for egrep... grep -E checking for AIX... no checking for library containing strerror... none required checking for ANSI C header files... yes checking for sys/types.h... yes checking for sys/stat.h... yes -----중간 생략----- checking use of VBR bitrate histogram... yes, with ncurses checking for FLOAT8 as float... no checking for nasm... /usr/bin/nasm checking for assembler routines for this processor type... no checking for additional optimizations... no checking for debug options... no configure: creating ./config.status config.status: creating Makefile config.status: creating libmp3lame/Makefile config.status: creating libmp3lame/i386/Makefile config.status: creating frontend/Makefile config.status: creating mpplib/Makefile config.status: creating doc/Makefile config.status: creating doc/html/Makefile config.status: creating doc/man/Makefile config.status: creating include/Makefile config.status: creating Dll/Makefile config.status: creating misc/Makefile config.status: creating Debian4.0/Makefile config.status: creating dshow/Makefile config.status: creating ACM/Makefile config.status: creating ACM/ADbg/Makefile config.status: creating ACM/ddk/Makefile config.status: creating ACM/tinyxml/Makefile config.status: creating lame.spec config.status: creating mac/Makefile config.status: creating config.h </pre>
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		<pre> config.status: executing depfiles commands [root@localhost lame-3.97]# make make all-recursive make[1]: Entering directory `/root/lame-3.97' Making all in mpglib make[2]: Entering directory `/root/lame-3.97/mpglib' if /bin/sh ../libtool --tag=CC --mode=compile gcc -DHAVE_CONFIG_H -I. -I. -I. -I../include -I. -I../libmp3lame -I. -O3 -ffast-math -funroll-loops -Wall -pipe -MT common.lo -MD -MP -MF ".deps/common.Tpo" -c -o common.lo common.c; W then mv -f ".deps/common.Tpo" ".deps/common.Plo"; else rm -f ".deps/common.Tpo"; exit 1; fi mkdir .libs gcc -DHAVE_CONFIG_H -I. -I. -I. -I../include -I. -I../libmp3lame -I. -O3 -ffast-math -funroll-loops -Wall -pipe -MT common.lo -MD -MP -MF .deps/common.Tpo -c common.c -fPIC -DPIC -o .libs/common.o gcc -DHAVE_CONFIG_H -I. -I. -I. -I../include -I. -I../libmp3lame -I. -O3 -ffast-math -funroll-loops -Wall -pipe -MT common.lo -MD -MP -MF .deps/common.Tpo -c common.c -o common.o >/dev/null 2>&1 if /bin/sh ../libtool --tag=CC --mode=compile gcc -DHAVE_CONFIG_H -I. -I. -I. -I../include -I. -I../libmp3lame -I. -O3 -ffast-math -funroll-loops -Wall -pipe -MT dct64_i386.lo -MD -MP -MF ".deps/dct64_i386.Tpo" -c -o dct64_i386.lo dct64_i386.c; W then mv -f ".deps/dct64_i386.Tpo" ".deps/dct64_i386.Plo"; else rm -f ".deps/dct64_i386.Tpo"; exit 1; fi gcc -DHAVE_CONFIG_H -I. -I. -I. -I../include -I. -I../libmp3lame -I. -O3 -ffast-math -funroll-loops -Wall -pipe -MT dct64_i386.lo -MD -MP -MF .deps/dct64_i386.Tpo -c dct64_i386.c -fPIC -DPIC -o .libs/dct64_i386.o gcc -DHAVE_CONFIG_H -I. -I. -I. -I../include -I. -I../libmp3lame -I. -O3 -ffast-math -funroll-loops -Wall -pipe -MT dct64_i386.lo -MD -MP -MF .deps/dct64_i386.Tpo -c dct64_i386.c -o dct64_i386.o >/dev/null 2>&1 if /bin/sh ../libtool --tag=CC --mode=compile gcc -DHAVE_CONFIG_H -I. -I. -I. -I../include -I. -I../libmp3lame -I. -O3 -ffast-math -funroll-loops -Wall -pipe -MT decode_i386.lo -MD -MP -MF -----중간 생략----- gcc -O3 -ffast-math -funroll-loops -Wall -pipe -I/usr/include/gtk-1.2 -I/usr/include/glib-1.2 -I/usr/lib64/glib/include -I/usr/X11R6/include -o lame main.o get_audio.o lametime.o parse.o portableio.o timestatus.o brhist.o ../libmp3lame/.libs/libmp3lame.a -lcurses -lm make[2]: Leaving directory `/root/lame-3.97/frontend' Making all in Dll </pre>
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	<pre> make[2]: Entering directory `/root/lame-3.97/Dll' make[2]: `all'를 위해 할 일이 없습니다 make[2]: Leaving directory `/root/lame-3.97/Dll' Making all in Debian4.0 make[2]: Entering directory `/root/lame-3.97/Debian4.0' make[2]: `all'를 위해 할 일이 없습니다 make[2]: Leaving directory `/root/lame-3.97/Debian4.0' Making all in doc make[2]: Entering directory `/root/lame-3.97/doc' Making all in html make[3]: Entering directory `/root/lame-3.97/doc/html' make[3]: `all'를 위해 할 일이 없습니다 make[3]: Leaving directory `/root/lame-3.97/doc/html' Making all in man make[3]: Entering directory `/root/lame-3.97/doc/man' make[3]: `all'를 위해 할 일이 없습니다 make[3]: Leaving directory `/root/lame-3.97/doc/man' make[3]: Entering directory `/root/lame-3.97/doc' make[3]: `all-am'를 위해 할 일이 없습니다 make[3]: Leaving directory `/root/lame-3.97/doc' make[2]: Leaving directory `/root/lame-3.97/doc' Making all in include make[2]: Entering directory `/root/lame-3.97/include' make[2]: `all'를 위해 할 일이 없습니다 make[2]: Leaving directory `/root/lame-3.97/include' Making all in misc make[2]: Entering directory `/root/lame-3.97/misc' make[2]: `all'를 위해 할 일이 없습니다 make[2]: Leaving directory `/root/lame-3.97/misc' Making all in dshow make[2]: Entering directory `/root/lame-3.97/dshow' make[2]: `all'를 위해 할 일이 없습니다 make[2]: Leaving directory `/root/lame-3.97/dshow' Making all in ACM make[2]: Entering directory `/root/lame-3.97/ACM' Making all in ADbg make[3]: Entering directory `/root/lame-3.97/ACM/ADbg' make[3]: `all'를 위해 할 일이 없습니다 make[3]: Leaving directory `/root/lame-3.97/ACM/ADbg' Making all in ddk make[3]: Entering directory `/root/lame-3.97/ACM/ddk' make[3]: `all'를 위해 할 일이 없습니다 make[3]: Leaving directory `/root/lame-3.97/ACM/ddk' </pre>
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		<pre> Making all in tinyxml make[3]: Entering directory `/root/lame-3.97/ACM/tinyxml' make[3]: `all'를 위해 할 일이 없습니다 make[3]: Leaving directory `/root/lame-3.97/ACM/tinyxml' make[3]: Entering directory `/root/lame-3.97/ACM' make[3]: `all-am'를 위해 할 일이 없습니다 make[3]: Leaving directory `/root/lame-3.97/ACM' make[2]: Leaving directory `/root/lame-3.97/ACM' Making all in mac make[2]: Entering directory `/root/lame-3.97/mac' make[2]: `all'를 위해 할 일이 없습니다 make[2]: Leaving directory `/root/lame-3.97/mac' make[2]: Entering directory `/root/lame-3.97' make[2]: `all-am'를 위해 할 일이 없습니다 make[2]: Leaving directory `/root/lame-3.97' make[1]: Leaving directory `/root/lame-3.97' </pre>
	비 고	
2	시험항목	LAME 인코딩 테스트
	시험절차	time ./frontend/lame ../song.wav song.mp3
	시험결과	<pre> [root@localhost lame-3.97]# time ./frontend/lame ../song.wav song.mp3 LAME 3.97 64bits (http://www.mp3dev.org/) Using polyphase lowpass filter, transition band: 16538 Hz - 17071 Hz Encoding ../song.wav to song.mp3 Encoding as 44.1 kHz 128 kbps j-stereo MPEG-1 Layer III (11x) qual=3 Frame CPU time/estim REAL time/estim play/CPU ETA 24/24 (100%) 0:01/ 0:01 0:01/ 0:01 15.673x 0:00 ----- kbps LR MS % long switch short % 128.0 75.0 25.0 79.2 12.5 8.3 Writing LAME Tag...done ReplayGain: -1.6dB real 1m45.053s user 1m45.050s sys 0m0.002s </pre>
	비 고	<p>song.wav 파일 크기 : 147MB</p> <p>Host OS와 Guest OS에서 각각 3번씩 테스트하여 중간기록 채택</p>

다. 파일 쓰기 성능 테스트

단계	항목/시험/결과	
1	시험항목	Hard Disk Write Test
	시험절차	dd if=/dev/zero of=zero bs=1024 count=200000
	시험결과	<pre>[root@localhost ~]# time dd if=/dev/zero of=zero bs=1024 count=200000 200000+ 0개의 레코드를 입력하였습니다 200000+ 0개의 레코드를 출력하였습니다 real 0m3.008s user 0m0.021s sys 0m1.579s</pre>
	비고	Host OS와 Guest OS에서 각각 3번씩 테스트하여 중간기록 채택

라. 파일 복사 성능 테스트

단계	항목/시험/결과	
1	시험항목	Unix Benchmark 프로그램 설치
	시험절차	① 다운로드 : wget http://jkers.puffin.co.kr/unixbench-4.1.0.tgz ② 압축해제 : tar xvfz unixbench-4.1.0.tgz ③ 컴파일 : make
	시험결과	<pre> ① 다운로드 [root@localhost ~]# wget http://jkers.puffin.co.kr/unixbench-4.1.0.tgz --10:17:03-- http://jkers.puffin.co.kr/unixbench-4.1.0.tgz => `unixbench-4.1.0.tgz' Resolving jkers.puffin.co.kr... 220.149.80.15 Connecting to jkers.puffin.co.kr 220.149.80.15 :80... connected. HTTP request sent, awaiting response... 200 OK Length: 63,075 (62K) [application/x-tar] 100%[===== =====>] 63,075 298.88K/s 10:17:03 (298.53 KB/s) - `unixbench-4.1.0.tgz' saved [63075/63075] [root@localhost ~]# ls Desktop install.log pengrix_ent_latest.tar.gz pengrix_std_latest.tar.gz anaconda-ks.cfg install.log.syslog pengrix_std_1.0 unixbench-4.1.0.tgz ② 압축해제 [root@localhost ~]# tar xvfz unixbench-4.1.0.tgz unixbench-4.1.0/ unixbench-4.1.0/Makefile unixbench-4.1.0/README unixbench-4.1.0/Run unixbench-4.1.0/pgms/ unixbench-4.1.0/pgms/cleanup.sh unixbench-4.1.0/pgms/index.awk unixbench-4.1.0/pgms/index.base unixbench-4.1.0/pgms/index.sh unixbench-4.1.0/pgms/loopm.awk unixbench-4.1.0/pgms/loops.awk unixbench-4.1.0/pgms/multi.sh </pre>

	<pre> unixbench-4.1.0/pgms/report.awk unixbench-4.1.0/pgms/report.sh unixbench-4.1.0/pgms/tst.sh unixbench-4.1.0/pgms/unixbench.logo unixbench-4.1.0/pgms/fs.awk unixbench-4.1.0/pgms/mwips.awk unixbench-4.1.0/pgms/perlbench unixbench-4.1.0/pgms/lps.awk unixbench-4.1.0/pgms/select unixbench-4.1.0/results/ unixbench-4.1.0/src/ unixbench-4.1.0/src/arith.c unixbench-4.1.0/src/context1.c unixbench-4.1.0/src/execl.c unixbench-4.1.0/src/getopt.c unixbench-4.1.0/src/hanoi.c unixbench-4.1.0/src/limit.c unixbench-4.1.0/src/looper.c unixbench-4.1.0/src/pipe.c unixbench-4.1.0/src/spawn.c unixbench-4.1.0/src/syscall.c unixbench-4.1.0/src/timeit.c unixbench-4.1.0/src/dhry_2.c unixbench-4.1.0/src/dummy.c unixbench-4.1.0/src/fstime.c unixbench-4.1.0/src/big.c unixbench-4.1.0/src/dhry_1.c unixbench-4.1.0/src/dhry.h unixbench-4.1.0/src/whets.c unixbench-4.1.0/src/time-polling.c unixbench-4.1.0/testdir/ unixbench-4.1.0/testdir/dc.dat unixbench-4.1.0/testdir/cctest.c unixbench-4.1.0/testdir/sort.src unixbench-4.1.0/tmp/ [root@localhost ~]# cd unixbench-4.1.0 [root@localhost unixbench-4.1.0]# ls Makefile README Run pgms results src testdir tmp </pre>
	<p>③ 컴파일</p> <pre> [root@localhost unixbench-4.1.0]# make Checking distribution of files </pre>

	<pre> ./pgms exists ./src exists ./testdir exists ./tmp exists ./results exists gcc -o ./pgms/arithoh -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall -Darithoh ./src/arith.c gcc -o ./pgms/register -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall -Ddatum='register int' ./src/arith.c gcc -o ./pgms/short -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall -Ddatum=short ./src/arith.c gcc -o ./pgms/int -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall -Ddatum=int ./src/arith.c gcc -o ./pgms/long -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall -Ddatum=long ./src/arith.c gcc -o ./pgms/float -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall -Ddatum=float ./src/arith.c gcc -o ./pgms/double -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall -Ddatum=double ./src/arith.c gcc -o ./pgms/hanoi -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall ./src/hanoi.c gcc -o ./pgms/syscall -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall ./src/syscall.c gcc -o ./pgms/context1 -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall ./src/context1.c gcc -o ./pgms/pipe -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall ./src/pipe.c gcc -o ./pgms/spawn -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall ./src/spawn.c gcc -o ./pgms/execl -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall ./src/execl.c In file included from ./src/execl.c:32: ./src/big.c: In function `wrapup': ./src/big.c:425: warning: implicit declaration of function `kill' ./src/execl.c: In function `main': ./src/execl.c:80: warning: long unsigned int format, time_t arg (arg 3) cd ./src; gcc -c -DTIME -Wall -pedantic -ansi -DHZ= -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall dhry_1.c cd ./src; gcc -c -DTIME -Wall -pedantic -ansi -DHZ= -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall dhry_2.c gcc -o ./pgms/dhry2 -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall ./src/dhry_1.o ./src/dhry_2.o cd ./src; rm -f dhry_1.o dhry_2.o </pre>
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		<pre>cd ./src; gcc -c -DTIME -Wall -pedantic -ansi -DREG=register -DHZ= -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall dhry_1.c cd ./src; gcc -c -DTIME -Wall -pedantic -ansi -DREG=register -DHZ= -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall dhry_2.c gcc -o ./pgms/dhry2reg -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall ./src/dhry_1.o ./src/dhry_2.o cd ./src; rm -f dhry_1.o dhry_2.o gcc -o ./pgms/looper -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall ./src/looper.c gcc -o ./pgms/fstime -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall -Dawk=1 ./src/fstime.c ./src/fstime.c: In function `w_test': ./src/fstime.c:155: warning: implicit declaration of function `sync' gcc -o ./pgms/fsbuffer -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall -Dawk=1 W -DFSBUFFER ./src/fstime.c ./src/fstime.c: In function `w_test': ./src/fstime.c:155: warning: implicit declaration of function `sync' gcc -o ./pgms/fsdisk -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall -Dawk=1 W -DFSdisk ./src/fstime.c ./src/fstime.c: In function `w_test': ./src/fstime.c:155: warning: implicit declaration of function `sync' gcc -o ./pgms/whetstone-double -DTIME -Wall -pedantic -ansi -O2 -fomit-frame-pointer -fforce-addr -fforce-mem -ffast-math -Wall -DDP -DUNIX -DUNIXBENCH ./src/whets.c -lm</pre>
	비 고	
2	시험항목	File Copy Test
	시험절차	벤치마크 프로그램 실행 : ./Run fstime fsbuffer fsdisk
	시험결과	<pre>[root@localhost unixbench-4.1.0]# ./Run fstime fsbuffer fsdisk make all make[1]: Entering directory `/root/unixbench-4.1.0' Checking distribution of files ./pgms exists ./src exists ./testdir exists ./tmp exists ./results exists make[1]: Leaving directory `/root/unixbench-4.1.0'</pre>

		<pre> # # # # # # # ##### ##### # # # # # # # # ## ## ##### ##### # # # # ##### # # # # # # ## # # # # # # # # # # # ## # # # # # # # # # # # # ##### # # # # # # ##### ##### # # # # # # 4 1 Based on the Byte Magazine Unix Benchmark 44 11 v v 4 4 1 v v 44444 1 v4.1 revisions mostly by David C. Niemi, v 4 o 111 Reston, VA, USA <niemi@tux.org> Filesystem Throughput 1024 bufsize 2000 maxblocks 1 2 3 Filesystem Throughput 256 bufsize 500 maxblocks 1 2 3 Filesystem Throughput 4096 bufsize 8000 maxblocks 1 2 3 ===== BYTE UNIX Benchmarks (Version 4.1.0) System -- Linux localhost.localdomain 2.6.9-42.ELsmp #1 SMP Tue Aug 15 10:35:26 BST 2006 x86_64 x86_64 x86_64 GNU/Linux Start Benchmark Run: 2007. 05. 26. (토) 11:14:12 KST 1 interactive users. 11:14:12 up 14 days, 22:39, 1 user, load average: 0.40, 0.24, 0.09 lrwxrwxrwx 1 root root 4 5월 11 11:53 /bin/sh -> bash /bin/sh: symbolic link to `bash' /dev/cciss/c0d0p3 67837080 9991284 54399856 16% / File Read 1024 bufsize 2000 maxblocks 707202.0 KBps (30.0 secs, 3 samples) File Write 1024 bufsize 2000 maxblocks 383894.0 KBps (30.0 secs, 3 samples) File Copy 1024 bufsize 2000 maxblocks 241824.0 KBps (30.0 secs, 3 samples) File Read 256 bufsize 500 maxblocks 292898.0 KBps (30.0 secs, 3 samples) File Write 256 bufsize 500 maxblocks 129204.0 KBps (30.0 secs, 3 samples) File Copy 256 bufsize 500 maxblocks 80754.0 KBps (30.0 secs, 3 samples) File Read 4096 bufsize 8000 maxblocks 1262588.0 KBps (30.0 secs, 3 samples) File Write 4096 bufsize 8000 maxblocks 762249.0 KBps (30.0 secs, 3 samples) </pre>
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		<div>File Copy 4096 bufsize 8000 maxblocks 501729.0 KBps (30.0 secs, 3 samples)</div> <div>INDEX VALUES</div> <table><thead><tr><th>TEST</th><th>BASELINE</th><th>RESULT</th><th>INDEX</th></tr></thead><tbody><tr><td>File Copy 1024 bufsize 2000 maxblocks</td><td>3960.0</td><td>241824.0</td><td>610.7</td></tr><tr><td>File Copy 256 bufsize 500 maxblocks</td><td>1655.0</td><td>80754.0</td><td>487.9</td></tr><tr><td>File Copy 4096 bufsize 8000 maxblocks</td><td>5800.0</td><td>501729.0</td><td>865.0</td></tr><tr><td colspan="4">=====</td></tr><tr><td>FINAL SCORE</td><td></td><td></td><td>636.4</td></tr></tbody></table>	TEST	BASELINE	RESULT	INDEX	File Copy 1024 bufsize 2000 maxblocks	3960.0	241824.0	610.7	File Copy 256 bufsize 500 maxblocks	1655.0	80754.0	487.9	File Copy 4096 bufsize 8000 maxblocks	5800.0	501729.0	865.0	=====				FINAL SCORE			636.4
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=====																										
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비 고	Host OS와 Guest OS에서 각각 10번씩 테스트하여 평균값 산출 Guest OS 메모리 : 128MB																									

마. 정수연산 성능 테스트

단계	항목/시험/결과	
1	시험항목	Dhrystone benchmark
	시험절차	벤치마크 프로그램 실행 : ./Run dhry2reg
	시험결과	<pre> [root@localhost unixbench-4.1.0]# ./Run dhry2reg make all make[1]: Entering directory `/root/unixbench-4.1.0' Checking distribution of files ./pgms exists ./src exists ./testdir exists ./tmp exists ./results exists make[1]: Leaving directory `/root/unixbench-4.1.0' # # # # # # # ##### ##### # # ##### # # # # ## ## ##### ##### # # # # ##### # # # # # # ## # # # # # # # # # # # ## # # # # # # # # # # # # ##### # # # # # ##### ##### # # # 4 1 Based on the Byte Magazine Unix Benchmark 44 11 v v 4 4 1 v v 44444 1 v4.1 revisions mostly by David C. Niemi, v 4 o 111 Reston, VA, USA <niemi@tux.org> Dhrystone 2 using register variables 1 2 3 4 5 6 7 8 9 10 ===== BYTE UNIX Benchmarks (Version 4.1.0) System -- Linux localhost.localdomain 2.6.9-42.ELsmp #1 SMP Tue Aug 15 10:35:26 BST 2006 x86_64 x86_64 x86_64 GNU/Linux Start Benchmark Run: 2007. 05. 26. (토) 11:11:13 KST 1 interactive users. 11:11:13 up 14 days, 22:36, 1 user, load average: 0.00, 0.00, 0.00 </pre>

		<pre> lrwxrwxrwx 1 root root 4 5월 11 11:53 /bin/sh -> bash /bin/sh: symbolic link to `bash' /dev/cciss/c0d0p3 67837080 9991276 54399864 16% / Dhrystone 2 using register variables 8602382.4 lps (10.0 secs, 10 samples) INDEX VALUES TEST BASELINE RESULT INDEX Dhrystone 2 using register variables 116700.0 8602382.4 737.1 ===== FINAL SCORE 737.1 </pre>
비 고		Host OS와 Guest OS에서 각각 10번씩 테스트하여 평균값 산출 Guest OS 메모리 : 128MB

바. 부동소숫점연산 성능 테스트

단계	항목/시험/결과	
1	시험항목	WhetStone Benchmark
	시험절차	벤치마크 프로그램 수행 : ./Run whetstone-double
	시험결과	<pre> [root@localhost unixbench-4.1.0]# ./Run whetstone-double make all make[1]: Entering directory `/root/unixbench-4.1.0' Checking distribution of files ./pgms exists ./src exists ./testdir exists ./tmp exists ./results exists make[1]: Leaving directory `/root/unixbench-4.1.0' # # # # # # # ##### ##### # # # # # # # # ## ## ##### ##### # # # # ##### # # # # # # ## # # # # # # # # # # # ## # # # # # # # # # # # # ##### # # # # # # ##### ##### # # # # # # 4 1 Based on the Byte Magazine Unix Benchmark 44 11 v v 4 4 1 v v 44444 1 v4.1 revisions mostly by David C. Niemi, v 4 o 111 Reston, VA, USA <niemi@tux.org> Double-Precision Whetstone 1 2 3 4 5 6 7 8 9 10 ===== BYTE UNIX Benchmarks (Version 4.1.0) System -- Linux localhost.localdomain 2.6.9-42.ELsmp #1 SMP Tue Aug 15 10:35:26 BST 2006 x86_64 x86_64 x86_64 GNU/Linux Start Benchmark Run: 2007. 05. 26. (토) 12:10:52 KST 4 interactive users. 12:10:52 up 14 days, 23:36, 4 users, load average: 0.83, 0.30, 0.14 </pre>

		<pre>lrwxrwxrwx 1 root root 4 5월 11 11:53 /bin/sh -> bash /bin/sh: symbolic link to `bash' /dev/cciss/c0d0p3 67837080 9988760 54402380 16% / Double-Precision Whetstone 2066.4 MWIPS (10.0 secs, 10 samples) INDEX VALUES TEST BASELINE RESULT INDEX Double-Precision Whetstone 55.0 2066.4 375.7 ===== FINAL SCORE 375.7</pre>
	비 고	Host OS와 Guest OS에서 각각 10번씩 테스트하여 평균값 산출 Guest OS 메모리 : 128MB