

# はじめてのDOSBox

## DOSBox for beginners

- 1、自己紹介 Self introduction
- 2、DOSBoxとは? About DOSBox?
- 3、DOSBox 0.74 VS 最新SVN Build
- 4、とりあえず使ってみる
- 5、Windows9xのインストール
- 6、AndroidとiOSのDOSBox
- 7、最新版 SVN Build方法
- 8、Next My Presentations OSC Nagoya, Taiwan MOPCON

Android版DOSBox Turbo  
+無敵CD-928



This Presentation:  
Slideshare & PDF files  
publication of my HP  
<http://kapper1224.sakura.ne.jp>

Speaker :  
Kapper

Tokaido Linux Users Group  
2016/2/20 13:00~

Place : 名古屋 Nagoya  
昭和生涯学習センター 第2和室

# Self Introduction



- My name: Kapper
- Twitter account: [@kapper1224](#)
- HP: <http://kapper1224.sakura.ne.jp>
- Slideshare: <http://www.slideshare.net/kapper1224>
- My Hobby: Linux, \*BSD, and Mobile ARM Devices
- My favorite words: Record than experiment important
- Test Model: Netwalker(PC-Z1,T1)、Nokia N900、DynabookAZ、RaspberryPi  
Nexus7(2012、2013)、Hercules eCAFE EX HD、Jetson TK-1、  
OpenPandora、ARM Chromebook、ZTE OPEN C (FirefoxOS)  
台湾Android電子辭書 無敵CD-920、CD-928
- Recent Activity:
  - Netwalker on the Linux from Scratch.
  - Hacking of Android Nexus7.
  - I have recently often use the ARM Chromebook.

# Recent test こんな事やっています

## 1. Linux distributions on Android

### Debian KitとComplete Linux

- Android上でchroot環境を構築してapt-getしてパッケージを入れるアプリ。Debian化が出来る。
- Androidをシンプルにサーバ化できる。root化が出来るものといらないものと。
- Debian KitはAndroidの親プロセスのルート環境でapt-getが使える仕組みなので、自由度が高い(ハイリスク?)
- Debian Norootが入れられない古い環境向けも

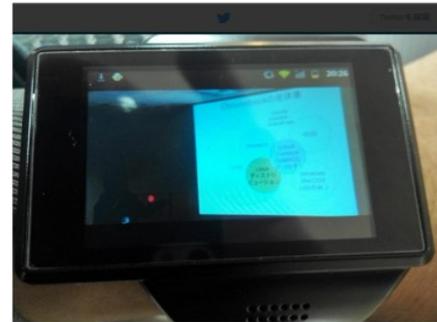


Complete Linux

## 2. Hacking with SmartWatch

リモートしたり動画やSlideshareとか

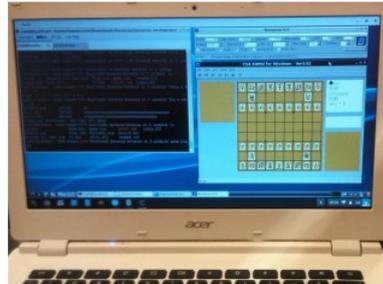
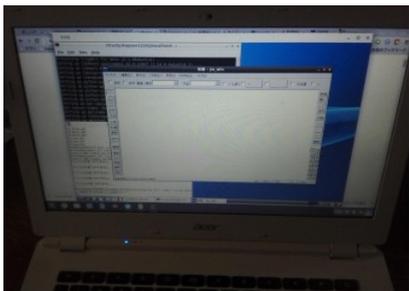
- Androidアプリを用いて動画やリモートデスクトップなど
- 実用性はともかく高解像度化すれば、出来る事が増える
- 会議中にこっそりTwitterとかニュース見たり(おい)
- 台風情報とか、天気予報とかは便利です(使わないとかスマホで十分、とか言う意見は禁句)



## 3. Windows and Wine on ARM

x86 Emulation on ExaGear-Desktop 1 board PC, and ARM Chromebook

- ExaGear-Desktop is 4.5 times faster than qemu.
- i686 Ubuntu12.04LTS on ARMhf Ubuntu 14.04,12.04
- Boinc Benchmarks: @ ARM Chromebook CB5-311 TegraK-1  
Integer points (ARMhf Base) : 6118 ⇒ (i686): 1800 29.4%  
Flotings points (ARMhf Base) : 914 ⇒ (i686): 200 21.9%  
about Pentium4 1.8GHz on ARM.(Qemu =Pentium2 266MHz)
- Windows applications on Wine, on ARM devices.  
jw-cad(Wine) on ARM Chromebook Bonanza(Wine) on ARM Chromebook



## 4. Presentations in Asia(HongKong,Taiwan)

### Opensource Conference

台湾MOPCON2015 Kapperセミナー

- 今回の通訳さん、Field Pan氏。本職ゲームクリエイター通訳とかコーディネーターも出来るハイスキルな方台湾でビジネスする人には頼りになるはず
- 視聴者 推定500人前後。
- 日本人の活動の宣伝資料追加。
- 若いエンジニアさん多数。質問多い  
Mainly many young engineer's



# 今回のテーマ This Presentation

- DOSBoxでWindows9xやアプリを動かしたい人向け  
To emulate the x86 from ARM devices
- スマホやタブレットでWindows9xしようぜ  
To emulate Windows9x from ARM Smartphones and Tablets.
- Gameや言語、エディタや各種アプリまで  
To Game, language, editor and any applications.
- 海外で発表する資料と共有する為に一部英語で作っています。  
ご了承ください。  
I am made presentation materials in English and Japanese  
in order to share content and information for any countries  
presentations. Please understand.

# DOSBoxとは？ About DOSBox?

# x86 Emulation on DOSBox

- DOSBoxとはi386~i586エミュでWindows9xや色々なアプリが動作  
DOSBox can operate ~Windows9x in the i386~i586 emulator
- DOSBoxは様々なモバイルOSに移植されて動く特徴があります。  
DOSBox has been ported MobileOSs, about Android, iOS, WindowsMobile, Blackberry, PSP, Vita, 3DS and others.
- DOSBoxは独自に進化した高度なUIとドライバがあり、ゲームに最適  
最近ではWindows9xゲーム向けに加速的に進化しています。  
DOSBox has its own evolved advanced UI and the driver, the best in the game. Recently, they are accelerating the evolution in for Windows9x game.

DOSBox on Android Wear

[https://youtu.be/GZx-LJH5J\\_I](https://youtu.be/GZx-LJH5J_I)

DOSBox on iOS

[https://www.youtube.com/watch?v=ZgX2BkM\\_6q4](https://www.youtube.com/watch?v=ZgX2BkM_6q4)

DOSBox on 3DS



# x86 Emulations on ARM Devices

7

VMWare and Virtualbox are not working on ARM devices.(Only x86)

Emulation	OS	Root Device	Emulated OS	Spec	Comment
Qemu	Linux Android RaspberryPi	No	Windows MacOSX? Linux,*BSD	Slow	Tegra K-1 ⇒Pen II 266MHz Ver1.5~(ARM GUI)
Qemu+Wine	Linux Android RaspberryPi	Required	+Windows APP	Slow	Difficult kernel 3G/1G only chroot environment
Exagear-Desktop	Linux RaspberryPi	Required	Ubuntu,Debian	Fast	Tegra K-1 ⇒Pen4 1.8GHz
Exagear-Desktop +Wine	Linux RaspberryPi	Required	Ubuntu+Wine Windows APP	Fast	Tegra K-1 ⇒Pen4 1.8GHz
DOSBox	Linux Android RaspberryPi iOS,DS,PSP	No	DOS, Windows9x (i386~i586)	Slow	Tegra K-1 ⇒Pen II 200MHz NEON Supports Voodoo1+Glide
Bochs	Linux Android RaspberryPi iOS,PSP	No	Windows~XP (i386~x86-64) Linux,*BSD	Slow	Tegra K-1 ⇒Pen II 266MHz
XNP2 (PC-98 Emulation)	Linux Android RaspberryPi iOS	No	DOS, Windows95?	Slow	Tegra K-1 ⇒?

Internet dogmatic investigation of Kapper (if I wrong it, I'm sorry. )

# ご質問 Question

1. MSDOSを使ったことがある？  
Have you ever use MSDOS?
2. コマンドライン問題ないぜ？  
Can you use the MSDOS command line?
3. Windows95初代のインストールをした事がある？  
Have you ever install Windows9x?
4. WindowsME用ブートFDD最強？  
The Boot FDD for WindowsME is great?
5. Config.sysとかAutoexec.batとか書けるぜ？  
⇒書けなくてもたぶん全く問題ないです  
Can you write Config.sys and Autoexec.bat?  
⇒You do not have a problem even without write them.
6. HIMEMとかDPMIとか楽勝？640kb制限何それ？  
⇒一部を除けばキニシナイキニシナイ、多分
7. タブレットやスマホでWindows9xを動かしたい？
8. RaspberryPiでもDOSを使おう

# 始める前に・・・注意！ Warning!

DOSBoxはリリース版の0.74と最新のSVNバージョンでは世代的に機能が大きく違います。  
可能な限り、SVNバージョンを導入しましょう。

DOSBox have a many difference between the 0.74 and the SVN build.As much as possible, Let's use DOSBox SVN build.

# DOSBox ver 0.74 VS the SVN build <sup>10</sup>

Difference from the 0.74 to the SVN (Source: <http://ykh Wong.x-y.net/>)

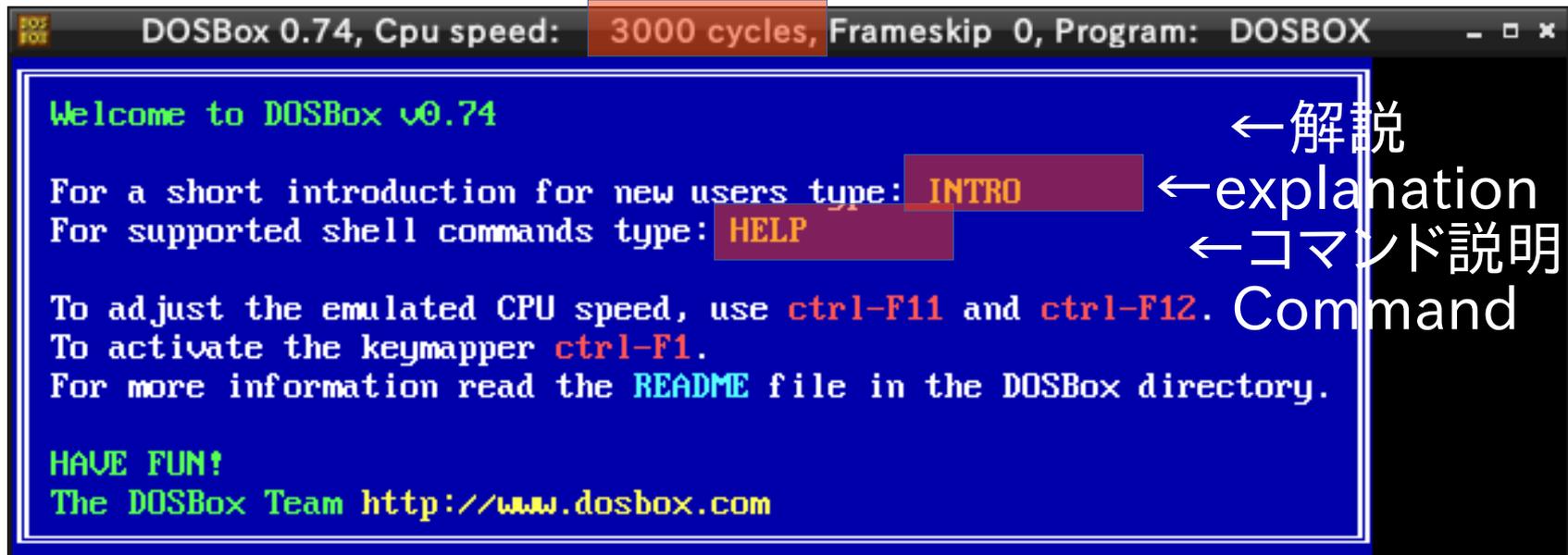
	Ver 0.74	The SVN Build	Comment
Release day	2010/5	Daily?, monthly?	About 6 years ago
CPU	i286~Pentium	+Pentium_MMX	MMX Support
CD-ROM Boot	NG(mount)	OK	ATAPI Suppot ~SVN
Voodoo Glide		Glide+D3D(Win9x) Bugfix	~SVN
TCP/IP	IPX:NE2000	IPX:NE2000	ModemSupport
Sound	MSCDEX MPU401 Soundblaster	MSCDEX,MPU401 Soundblaster cd audio control MT-32 emulation Flx	MIDI
Video	Svga_s3 CGA,EGA,VGA	+S3 801/805 driver (Win9x),Svga_S3 D3dx9 Fix	Win9x support
Disk	503MB (boot disk)	Larger than 8GB (boot disk)	Bootdisk
Others	—	ARMv7 dynrec core FreeDOS command SSE2,3DNow(base)	

Internet dogmatic investigation of Kapper (if I wrong it, I'm sorry. )

# 起動するとこんな画面。 なんだか良く分からない？

The Screen after you start

←CPU命令数 cycles、Flameskip



The screenshot shows the DOSBox 0.74 startup screen. The title bar reads "DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX". The main window has a blue background with white and green text. A white box highlights the introductory text, with arrows pointing to it from the right. The text includes: "Welcome to DOSBox v0.74", "For a short introduction for new users type: INTRO", "For supported shell commands type: HELP", "To adjust the emulated CPU speed, use ctrl-F11 and ctrl-F12. Command", "To activate the keymapper ctrl-F1.", "For more information read the README file in the DOSBox directory.", "HAVE FUN!", and "The DOSBox Team http://www.dosbox.com".

Z:\>SET BLASTER=A220 I7 D1 H5 T6

Z:\> ←起動ドライブZ(作業用)  
Boot drive Z

# MSDOSのFreewareをダウンロード

12

## Download MSDOS Freeware

- MSDOSのゲーム  
Freeware、Shareware、  
Demoを集めた合法サイト  
<http://www.dosgamesarchive.com/>

- MSDOSの究極のアプリを  
集めたリンク集2015年  
<http://www.opus.co.tt/dave/>

**DOS GAMES ARCHIVE**  
WWW.DOSGAMESARCHIVE.COM

HOME PAGE | GAMES | SCREENSHOT GALLERY | CHEATS | HELP | NEWSLETTER | FORUM  
CONTACT | LINKS | Developers and publishers | Online games | Statistics | Suggest a game

SEARCH

**Download free classic games on DOS Games Archive**

It's amazing how far computer games have progressed. But have you ever felt the urge to take a trip back in time and relive the games of the eighties and nineties? Well now you can!

We have **500 DOS games** in our archive that can be downloaded for free. These games are shareware, freeware, playable demos and full versions which are released as freeware or into the public domain. Our downloads don't contain any adware, malware, viruses or other unwanted software.

Also follow DOS Games Archive on [Facebook](#) and [Twitter](#).

Ads by Google

Download Full Game  
Free to Download PC Ga  
Free Strategy Games

**WARCRAFT: ORCS & HUMANS**

Category: **Real-Time Strategy**  
Year: **1994**  
Developer: **Blizzard Entertainment**  
Publishers: **Blizzard Entertainment**  
File types: **FormGen Playable demo Shareware**

**Recently added DOS games**

**MegaRace**  
Category: **Racing**  
File type: **Full version**  
Year: **1993**

**M.A.X.: Mechanized Assault & Exploration**  
Category: **Turn-Based**

### Interesting DOS programs

Here are several links to various DOS software and other DOS related websites. Most are freeware but a few are shareware and commercial about. Also, do email a thank you to the authors of any of the programs you use.

If you like to see Interesting Windows and Mac programs similar to this page, visit my computer user group, the [Trinidad and Tobago Com](#)

Browse the Interesting DOS programs site with each DOS program category having its own page : [Interesting DOS programs](#)

Comments about the new layout? My E-mail address: Dev Anand Teelucksingh, dave at opus.co.tt or devtee at gmail.com

DOS Program C

[New/Updated](#) | [Sound](#) | [Graphics](#) | [Utilities](#) | [Applicatio](#)

### New/Updated Links (updated February 3, 2015)

[Internet Archive's DOS Applications and Programs](#) Run DOS applications in your (modern) web browser

[Internet Archive's Software Library: MS-DOS Games](#) Play DOS games in your (modern) browser

[GOG.com](#) buy and download many DOS games

[Mpxplay v1.60b](#) MP3,OGG,WAV,AAC,FLAC, WMA, MPC,AC3 player with integrated file browser, spectrum analyser and o

[QuickView Pro v2.60](#) Plays DivX, AVI, MPG, MOV (Quicktime), MP3, WAV, OGG and view other graphic formats.

[MinEd 2014.24.2](#) Text editor with extensive Unicode support

[CarbonOS](#) DOS distro based on FreeDOS with long filename support

...and fixed a bunch of broken links

[Back to Top of Page](#)

### Sound Programs (includes audio CD players)

[Mpxplay v1.60b](#) MP3,OGG,WAV,AAC,FLAC, WMA, MPC,AC3 player with integrated file browser, spectrum analyser and o

[QuickView Pro v2.60](#) Plays MP3,WAV,OGG and view other graphic and video formats.

[OpenCP v2.60pre6](#) DOS music player (MP3, MIDI, MOD, WAV, CD-audio) with spectrum analyser and other features. GF

[DAMP v0.97 WIP 8](#) Free MP3 Player. Displays synchronised graphics when playing MP3 files. Source code available

[XTCPlay v0.97c](#) Graphical audio player of MP3, WAV, S3M, MOD and more from the demo group Sancton.

[DOSAMP v0.8](#) DOSAMP is a freeware command-line MP3 player.

[MPR 10/04/10](#) Small, minimalist DOS MP3 player (33K exe)

[JukeMp3 beta](#) Mp3/Mp2/Xm/Mod/S3m/CD-DA DOS player that tries to emulate a turntable.

# とりあえず Acid Tetrisを遊んでみる

Play Acid Tetris is freeware for MSDOS

- 実ストレージ、HDDをマウント (好きなディレクトリを指定)  
`mount c /home/~`  
`cd c:`  
 もしくは端末から、`# dosbox /home/(user)/(folder)/`
- 実行 (ダウンロードして~/ACIDに解凍した実行ファイル)  
`SABA.EXE` (~.EXEか~.bat、~.comファイル)

```

DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX
To adjust the emulated CPU speed, use ctrl-F11 and ctrl-F12.
To activate the keymapper ctrl-F1.
For more information read the README file in the DOSBox directory.

HAVE FUN!
The DOSBox Team http://www.dosbox.com

Z:\>SET BLASTER=A220 I7 D1 H5 T6

Z:\>mount c /home/kapper1224/DOSBOX/ ←HDDマウント mount
Drive C is mounted as local directory /home/kapper1224/DOSBOX/

Z:\>c: ←Cドライブ移動 Change C drive

C:\>cd ACID ←ディレクトリ移動 Change directory

C:\ACID>dir /w
Directory of C:\ACID\
[.]          [..]
SABA.EXE    SABA.TXT    FILE_ID.DIZ  SABA-W95.PIF  SABA.DAT
8 File(s)   1,925,744 Bytes.
2 Dir(s)    262,111,744 Bytes free.

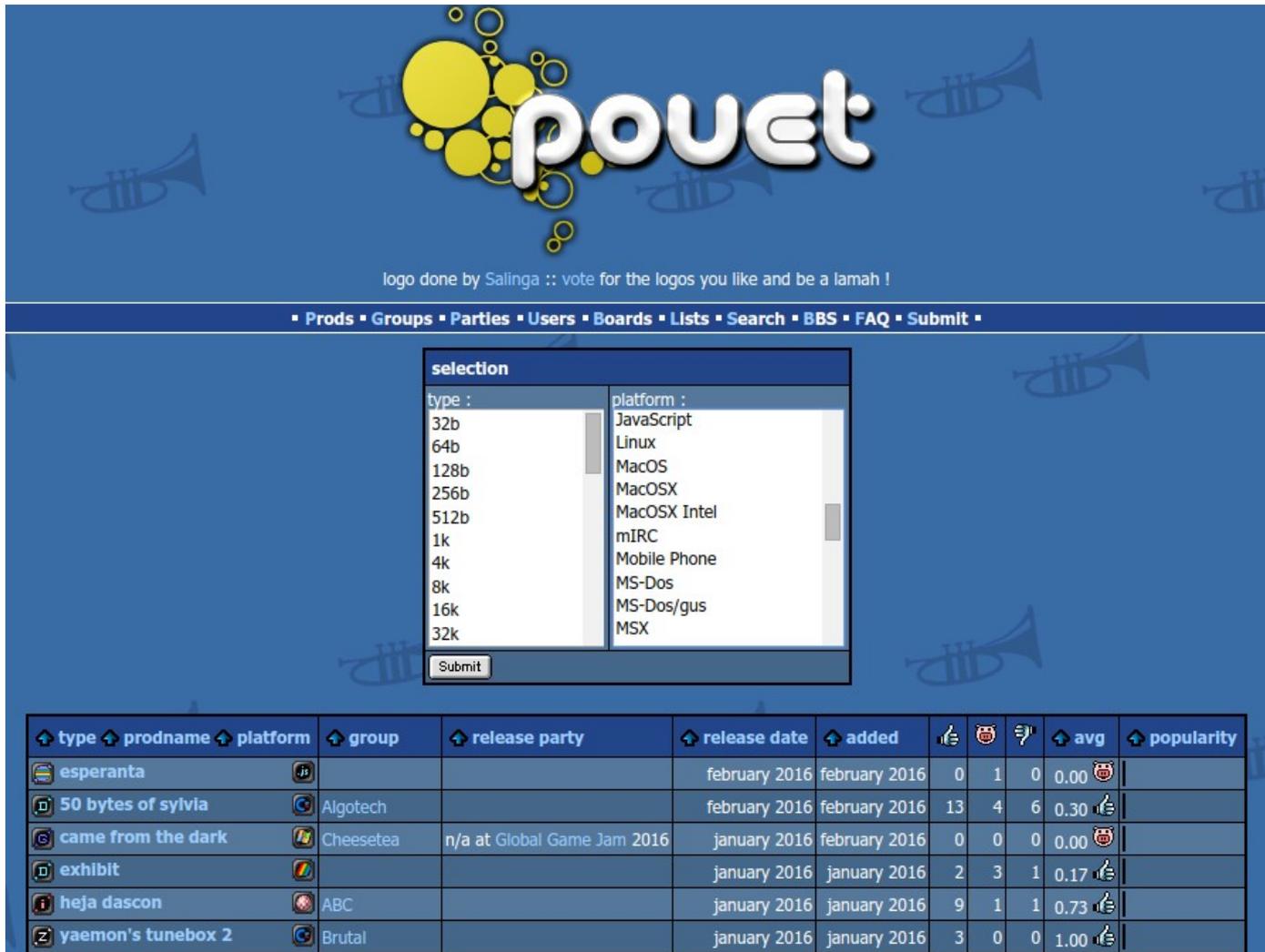
C:\ACID>SABA.EXE ←アプリ実行 run the app

```

# MSDOSのDemoをダウンロード

- MSDOSを含めた全ての機種種のDemoや音楽を集めた驚異の超サイト

<https://www.pouet.net/prodlist.php?>



The screenshot shows the Pouet website interface. At the top, the 'pouet' logo is displayed with the text 'logo done by Salinga :: vote for the logos you like and be a lamah !'. Below the logo is a navigation menu with links: Prods, Groups, Parties, Users, Boards, Lists, Search, BBS, FAQ, Submit.

The 'selection' form is visible, showing two dropdown menus for 'type' and 'platform'. The 'type' menu lists sizes from 32b to 32k. The 'platform' menu lists various operating systems and devices including JavaScript, Linux, MacOS, MacOSX, MacOSX Intel, mIRC, Mobile Phone, MS-Dos, MS-Dos/gus, and MSX. A 'Submit' button is located below the form.

Below the form is a table of products with the following columns: type, prodname, platform, group, release party, release date, added, and popularity. The table contains several rows of product data.

type	prodname	platform	group	release party	release date	added	likes	views	downloads	avg	popularity
	esperanta				february 2016	february 2016	0	1	0	0.00	
	50 bytes of sylvia		Algotech		february 2016	february 2016	13	4	6	0.30	
	came from the dark		Cheesetea	n/a at Global Game Jam 2016	january 2016	february 2016	0	0	0	0.00	
	exhibit				january 2016	january 2016	2	3	1	0.17	
	heja dascon		ABC		january 2016	january 2016	9	1	1	0.73	
	yaemon's tunebox 2		Brutal		january 2016	january 2016	3	0	0	1.00	

# とりあえずSecond Realityを再生

- 実ストレージ、HDDをマウント (好きなディレクトリを指定)  
`mount c /home/~`  
`cd c:`  
 もしくは端末から、`# dosbox /home/(user)/(folder)/`
- 実行 (ダウンロードして~/Secondに解凍した実行ファイル)  
`2NDFIX.EXE` (～.EXEか～.bat、～.comファイル)

DOSBox SVN, CPU speed: 3000 cycles, Frameskip 0, Program:

```

Welcome to DOSBox SVN
For a short introduction for new users type: INTRO
For supported shell commands type: HELP

To adjust the emulated CPU speed, use ctrl-F11 and ctrl-F12.
To activate the keymapper ctrl-F1.
For more information read the README file in the DOSBox direc

HAVE FUN!
The DOSBox Team http://www.dosbox.com
        
```

Z:\>SET BLASTER=A220 I7 D1 H5 T6

Z:\>mount c /home/kapper1224 ←HDDマウント  
 Drive C is mounted as local directory /home/kapper1224/

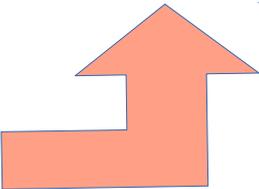
Z:\>c: ←Cドライブ移動

C:\>cd DOSBOX2\SECOOND/ ←ディレクトリ移動

C:\DOSBOX2\SECOOND>2NDFIX.EXE\_ ←アプリ実行

DOSBox SVN, CPU speed: 3000 cycles, Frameskip 0, Program: 2NDFIX





# とりあえずDOS版MUGENを遊ぶ

- 実ストレージ、HDDをマウント (好きなディレクトリを指定)  
`mount c /home/~`  
`cd c:`  
 もしくは端末から、`# dosbox /home/(user)/(folder)/`
- CWDPMI.EXEを同じフォルダに置いて実行  
**MUGEN.EXE** (～.EXEか～.bat、～.comファイル)

The image shows a DOSBox terminal window on the left and the MUGEN game interface on the right. The terminal window displays the following commands and output:

```

DOSBox SVN, CPU speed: 70000 cycles, Frameskip 0, Program: DOSBO
For more information read the README file in the DOSBox directory.
HAVE FUN!
The DOSBox Team http://www.dosbox.com

Z:\>SET BLASTER=A220 I7 D1 H5 T6
Z:\>mount c /home/kapper1224 ←HDDマウント
Drive C is mounted as local directory /home/kapper1224/
Z:\>c: ←Cドライブ移動
C:\>cd DOSBOX2\MUGEN\ ←ディレクトリ移動
C:\DOSBOX2\MUGEN>dir /w
Directory of C:\DOSBOX2\MUGEN\
[.]          [..]          [CHARS]       [DATA]         [DOCS]
[FONT]       [SOUND]      [STAGES]     CWDPMI.EXE    MUGEN.EXE
MUGENFAQ.TXT README.TXT    UPDATES.TXT
   5 File(s)   608,961 Bytes.
   8 Dir(s)    262,144,000 Bytes free.

C:\DOSBOX2\MUGEN>cycles=70000 ←Cycles数変更
C:\DOSBOX2\MUGEN>MUGEN.EXE_ ←MUGEN.EXE実行
  
```

The MUGEN game interface shows the title screen with the text "M.U.G.E.N." and a menu with options: TEAM ARCADE, TEAM VS, TEAM CO-OP, TRAINING, WATCH, and OPTIONS. A red arrow points from the terminal window to the MUGEN game interface, indicating the execution of MUGEN.EXE.

# Autoexec.batにコマンドを追記

- mountコマンドとか毎回入力するの面倒なので autoexec.batに書き込んで起動時に実行させる
- .dosbox/dosbox-0.74.confの最後の行に実行させるコマンドを追加する  
(SVN Buildの場合は.dosbox/dosbox-SVN.conf)

```
ems=true
umb=true
keyboardlayout=auto

[ipx]
# ipx: Enable ipx over UDP/IP emulation.

ipx=false

[autoexec]
# Lines in this section will be run at startup.
# You can put your MOUNT lines here.

mount c /home/kapper1224 ←コマンドを追加
```

# DOS (PC/AT) のドライブ構成

- 実ストレージ、HDDイメージはある程度決め打ちされている

A: フロッピーディスクドライブ #01

B: フロッピーディスクドライブ #02

C: ハードディスク内起動可能パーティション #01

D: ハードディスク内起動可能パーティション #02

もしくはCD-ROMドライブ



Z: DOSBox指定の作業用ファイル置き場ドライブ

- フロッピーディスクイメージは主にA: B: に  
ハードディスクイメージは主にC:以降  
CD-ROMドライブイメージは主にD:以降

# DOSBoxの基本メモリ構成

- 初期設定で、コンベンショナルメモリ632kb、UMB63kbプロテクトメモリ14,912kb確保されていますので、特殊な設定抜きでかなりのアプリが動作するはずです。

```
HAVE FUN!
```

```
The DOSBox Team http://www.dosbox.com
```

```
Z:\>SET BLASTER=A220 I7 D1 H5 T6
```

```
Z:\>mount c /home/kapper1224
```

```
Drive C is mounted as local directory /home/kapper1224/
```

```
Z:\>mem
```

```
632 Kb free conventional memory
 63 Kb free upper memory in 1 blocks (largest UMB 63 Kb)
14912 Kb free extended memory
14912 Kb free expanded memory
```

```
Z:\>_
```

# DOSBoxの基本コマンド

## • 使うと便利なコマンド一覧

command	Internal Programs	Comment	
mount	mount c /home/(kapper1224)/ mount -u c	Mount storage umount	
imgmount	imgmount c hd0.img	Mount img	
boot	boot -l c	Boot img	
cycles	cycles=30000 cycles=auto cycles=max	Speed change	
「Ctl」+「F5」		Save screenshot	
「Ctl」+「F5」+「Alt」		Save Video	
「Ctl」+「F7」		Decrease Flameskip	
「Ctl」+「F8」		Increase Flameskip	
「Ctl」 + 「F9」		Kill DOSBox	
「Ctl」+「F10」		Mouse OFF	
「Ctl」+「F11」		Speed down	
「Ctl」+「F12」		Speed up	
「Ctl」 + 「Enter」		Full screen	

# Windows9xのインストール

- Windows9xをインストールするにはHDDイメージをBochsで作成し、フォーマットしてからインストール
- DOSBox 0.74では500MBまでのHDDイメージしか起動できない (SVN Buildで対応済)
- DOSBox 0.74ではATAPIドライバが対応していないのでCD-ROMブートが出来ない。DiskExprolerでWindows9xファイルを直接コピーしてから実行する必要がある (SVN Buildで対応済)
- 必要なもの
  1. **Bochs本体**: HDDイメージ作成用です
  2. **DOSBOX本体**: エミュ本体
  3. **Windows9x CDROM**
  4. **Windows98SE他 FDDイメージ**: 各自入手で。  
FreeDOSのFDDイメージはFDISKとFormatが無いので注意。
  5. **DiskExplorerかループバックディスクマウント**:  
HDDイメージにWindows95インストールファイルをコピーします。

# Windows9xのインストール

- HDDイメージファイル作成にはbochsのbximageコマンドを使用

```
(wily)kapper1224@localhost: ~
ファイル(E) 編集(E) タブ(T) ヘルプ(H)
=====
                    bximage
          Disk Image Creation Tool for Bochs
    $Id: bximage.c 11315 2012-08-05 18:13:38Z vruppert $
=====

Do you want to create a floppy disk image or a hard disk image?
Please type hd or fd. [hd] hd          ←hd:HDD

What kind of image should I create?
Please type flat, sparse or growing. [flat] flat ←flat

Enter the hard disk size in megabytes, between 1 and 8257535
[10] 503          ←503: 503MB

I will create a 'flat' hard disk image with
cyl=1021
heads=16
sectors per track=63
total sectors=1029168
total size=502.52 megabytes

What should I name the image?
[c.img] hd0.img          ←HDDイメージ名

Writing: [] Done.

I wrote 526934016 bytes to hd0.img.

The following line should appear in your bochsrc:
  ata0-master: type=disk, path="hd0.img", mode=flat, cylinders=1021, heads=16, spt=6
3
```

# Windows9xのインストール

- DOSBoxを起動してFDD、HDDイメージをマウント
- FDDイメージを起動。MS-DOSよりHDDをFDISK、Format
- DiskExploerかLoopMountでWindowsのCD内ファイルをコピー

```
DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: BOOT
] For more information read the README file in the DOSBox directory. ]
]
] HAVE FUN!
] The DOSBox Team http://www.dosbox.com
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Z:¥>SET BLASTER=A220 I7 D1 H5 T6
```

Z:¥>mount x: c:¥test¥win95 ←ドライブをマウント  
Drive X is mounted as local directory c:¥test¥win95¥

Z:¥>x: ←C: Cドライブへ移動

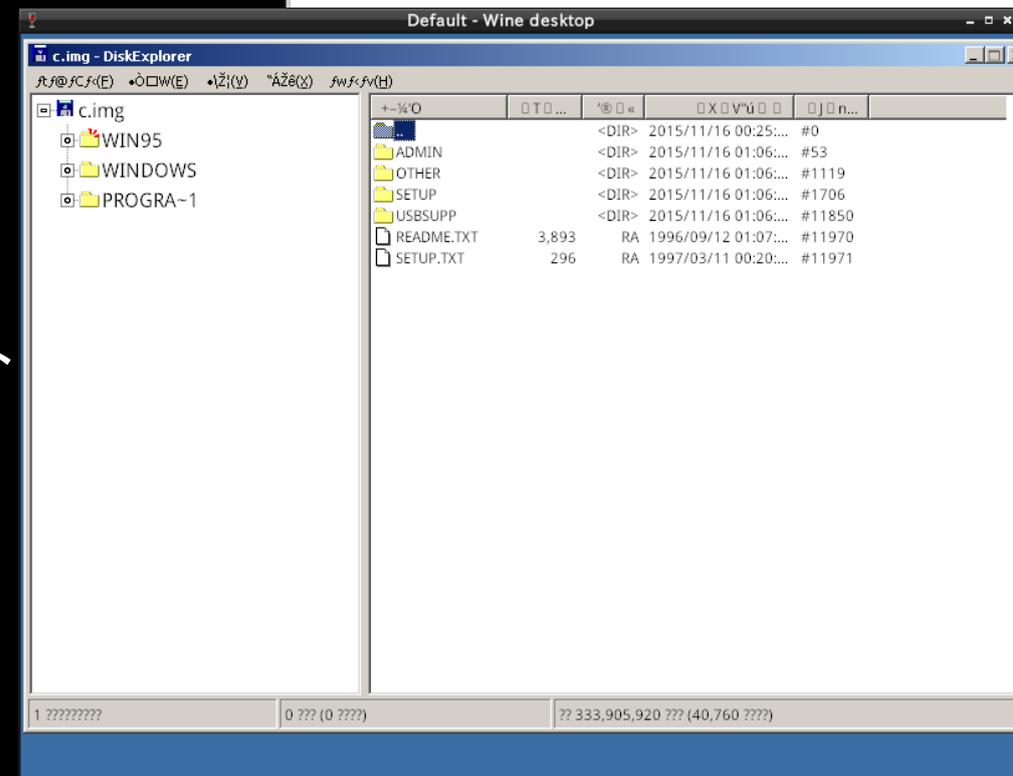
X:¥>imgmount 2 x:¥hd0.img -size 512,63,16,1021 -fs none  
Drive number 2 mounted as c:¥test¥win95¥hd0.img

X:¥>imgmount 3 x:¥hd1.img -size 512,63,16,1021 -fs none  
Drive number 3 mounted as c:¥test¥win95¥hd1.img  
←HDDイメージをマウント

X:¥>boot x:¥w95boot.img ←FDDイメージでBoot  
Opening image file: x:¥w95boot.img  
Booting from drive A...  
Starting Windows 95...

A:¥>fdisk\_ ←HDDをFDISK、Format

DiskExploer



# Windows9xのインストール

- 設定ファイルの.dosbox/dosbox-0.74.confを編集
  - 「machine=svga\_s3」を「machine=vgaonly」変更
  - 「memsize=16」を「memsize=31」変更
  - 「cputype=auto」を「cputype=pentium\_slow」変更
  - 「cycles=auto」を「cycles=30000」変更
 で保存して再びDOSBox起動。

## Emulations Speed (Cycles)

Emulation CPU	Cycles
8088 4.77 MHz	315
286 12.5MHz	2750
Default	3000
386 33MHz	7800
486 66MHz	26800
Pentium 100MHz	77000
Penitum II 300MHz	200000

## Dosbox-0.74.conf

```

language=
#machine=svga_s3
machine=vgaonly ←VGA変更
captures=capture (多分svga_s3でも問題なし)
memsize=31 ←変更(多分問題なし)

```

# Windows9xのインストール

- DOSBoxを起動しcycles=36000でCPU処理速度を変更(インストールが遅いから)
- MountしてFDDイメージから起動
- Windows9xのSetupプログラムを起動



```
DOSBox SVN, CPU speed: 36000 cycles, Frameskip 0, Prog
Welcome to DOSBox SVN
For a short introduction for new users type: INTRO
For supported shell commands type: HELP

To adjust the emulated CPU speed, use ctrl-F11 and ctrl-
To activate the keymapper ctrl-F1.
For more information read the README file in the DOSBox

HAVE FUN!
The DOSBox Team http://www.dosbox.com
```

```
DOSBox SV
Preparing to start
This may take a few minutes. Please wait...
The diagnostic tools were successfully loaded to dri
To get help, type HELP and press ENTER.
```

A:\>c: ←Cドライブへ移動

C:\>cd win95

C:\WIN95>cd setup

C:\WIN95\SETUP>setup.exe

←Setupプログラムを起動

Z:\>SET BLASTER=A220 I7 D1 H5 T6

Z:\>cycles=36000

←CPUスピード変更

Z:\>mount c /home/kapper1224

←マウント

Drive C is mounted as local directory /home/kapper1224/

Z:\>c:

←Cドライブへ移動

C:\>imgmount 2 c.img -size 512,63,16 -fs none

←HDDイメージをマウント

Drive number 2 mounted as c.img

C:\>boot WINDOW~1.IMG

←FDDイメージから起動

# Windows9xのインストール

- インストールが終了したら、再度DOSBOXを再起動
- imgmountでHDDイメージをマウント
- **boot -l c** でマウントしたHDDイメージを起動

DOSBox SVN, CPU speed: 3000 cycles, Frameskip 0, Pr

Welcome to DOSBox SVN

For a short introduction for new users type: **INTRO**  
For supported shell commands type: **HELP**

To adjust the emulated CPU speed, use **ctrl-F11** and **ct**  
To activate the keymapper **ctrl-F1**.  
For more information read the **README** file in the DOSB

**HAVE FUN!**  
The DOSBox Team <http://www.dosbox.com>

Z:\>SET BLASTER=A220 I7 D1 H5 T6

Z:\>imgmount c /home/kapper1224/c.img  
Drive C is mounted as /home/kapper1224/c.img

Z:\>boot -l c

↑ HDDイメージをマウント

↑ FDDイメージから起動

DOSBox SVN, CPU speed: 60000 cycles, Frameskip 0, Program: BOOT

Welcome

## Welcome to Windows 95

Did you know...  
You can find many interesting programs by clicking the Start button, pointing to Programs, and then pointing to Accessories.

Show this Welcome Screen next time you start Windows

Windows Tour  
What's New  
Online Registration  
Product Catalog  
Next Tip  
Close

My Computer  
Inbox  
Recycle Bin  
The Internet  
Online Services  
Set Up The Microsoft Network

Start Welcome 9:02 PM

# android版とiOS版DOSBox

- AndroidやiOSでも同じ様にDOSBoxが使えます。機種を選びません。これが一番の長所です。
- 色々な機種やOSでDOSBoxを動かして、DOSやWindows9xを是非動かしてみましょう

Android版DOSBox Turbo



iOS版 iDOS



# Javascript版EM-DOSBox

- ブラウザ上で動作するDOSBoxも公開されゲームやWindows9x動作
- 実用性はともかく色々な機種やOSでDOSBoxを動かして、DOSやWindows9xを是非動かしてみましよう

<https://win95.ajf.me/>



powered by  
**emscripten**

Resize canvas  Lock/hide mouse pointer

Microsoft  
**Windows 95**  
Microsoft Internet Explorer

DOSBox version 569b838 built with UNKNOWN  
Copyright 2002-2015 DOSBox Team, published under GNU GPL.  
---  
CONFIG:Loading primary settings from config file dosbox.conf  
SDL:Current window pixel format: SDL\_PIXELFORMAT\_RGB888  
MIXER:Got different values from SDL: freq 48000, blocksize 2048  
MIDI:Opened device:none  
Using partition 0 on drive; skipping 63 sectors  
Mounted FAT volume is FAT16 with 64110 clusters

# DOSBox推定動作スペック

- Android版DOSBox Turboは何故か動作速度が遅め

ARM Android	Emulations Cycles=
Cortex A8 (1Ghz)	486@33-40Mh
Snapdragon S3 (MSM8260 1.5Ghz)	486@50Mhz
Nvidia Tegra2 CPU (1Ghz)	486@66-80Mhz
A9/Exynos Processor (Galaxy II @ 1.2Ghz)	486@75-90Mhz
Snapdragon S4 Pro (1.5 Ghz - Nexus 7 [2013])	Pentium 60 Mhz
Nvidia Tegra3 CPU (1.5Ghz)	Pentium 60-75Mhz
Samsung Exynos (1.6 Ghz - Galaxy Note II)	Pentium 75 - 90
Snapdragon 800 (2.26 Ghz - Nexus 5)	Pentium 75 - 90

x86	Emulations Cycles=
Pentium Pro 200 MHz	286 6 MHz
Pentium II 350 MHz	386SX 25 MHz
Pentium III 1.0 GHz	486 66 MHz
Pentium 4 3.0 GHz	Pentium 133 MHz
Core 2 Duo 3.3 GHz	Pentium II 300 MHz
Core i5 4xxx 4.0 GHz	Pentium III 500 MHz

Source:

<https://sites.google.com/site/dosboxturbo/performance>

Source: <http://www.dosbox.com/wiki/Performance>

# DOSBox Performance Optimized

- 使わない機能のOFFにする事でちょっとだけ高速化

ARM Android	Emulations
3Dfx Emulation	OFF
GPU Rendering	ON
Turbo Cycles	ON
Turbo VGA	ON
Turbo Audio	ON
Frame skip	2~4
PC Speaker	OFF
Virtual Joystick	OFF
Virtual Buttons	OFF
ISA PnP	OFF
IPX Networking	OFF
CPU Core	Dynamic
CPU Type	Auto
CPU Governor	Interactive

x86	Emulations Cycles=

Source:

<https://sites.google.com/site/dosboxturbo/performance>

Source: <http://www.dosbox.com/wiki/Performance>

# DOSBox最新版 SVN Build

- 色々な新機能を使うために、最新SVN Buildを行います。  
常にDOSBoxの最新版をビルドして使う事をお勧めします。
- ```
sudo apt-get build-dep dosbox  
sudo apt-get install libsdl1.2-dev libsdl-net1.2-dev libsdl-  
sound1.2-dev libasound2-dev libpng12-dev automake  
autoconf zlib1g-dev subversion
```
- SVNでソースコードをダウンロード。  

```
svn checkout svn://svn.code.sf.net/p/dosbox/code-  
0/dosbox/trunk dosbox
```
- ビルドします。  

```
cd dosbox  
./autogen.sh  
./configure  
make  
sudo make install
```

# Next My Presentation

## OSC Nagoya, Kyoto, Taiwan MOPCON

- OSC Nagoya Kyoto, and Taiwan MOPCON  
my exhibition schedule
- Content: OSC Nagoya: Hacking of Android?  
:OverSea: Hacking with ARM devices
- FOSSASIA2016 Singapore 3/18~20  
OSC Nagoya 5/28  
HongKong OSC 6/M?  
OSC Kyoto 8/E?  
Taiwan COSCUP 8/M?  
KOF(Kansai Open Forum) 11/?  
Taiwan MOPCON 10/E?
- ... And Tokaido Linux Users Group