“Cristina Ricci”

Vice snapshot with CCS64 palette

Made with the GIMP from a CR photo
and converted to C64 320x200
HiRes Mode Bitmap
by Stefano Tognon
in 2003

“Think to something [Engines]”
...

Free Software Group

SciDim 5
version 1.00
11 January 2004

SIDin Contents

General Index

Editorials

Stefano Tognon <ice00@libero.it>

Hi, again.

This number is completely devoted to music engines.

As you can see, the second part of music engines searching is ready. We can so look at a big database of engines and we learn how to add new engines signature to it.

The second article is related to a new project I started: High Voltage Music Engines Collection.
This project collects and give credits to (all) the available C64 tools for made music.

The other new thing to say is that I had take the challenge of ripping Marble Madness. It's now only question of time, very long too, but I want to made the rip!
The used engine is a big waste of code, but I see some music patterns into it that can give me the right street for making the rip.
Expect an article about it in a next issue.

Finally, I'm planning to do another reverse engineering work about a music driver. However this is only in an alpha stage, but it is a good starting.

I'm sorry for releasing this number after about a month of planned date, but there was some trouble:

- No Christmas holiday this year :(
- I have decided to unify my actual 2 most used Linux distro (one for networking and one for developing) in a totally new one, so this required many times for recreating my custom options that comes out by many years of use.
- Lot of activity in the engines like you can read in this number that consume many time

However, there is a good things that compensate for this: you can read an interview with Chris Huelsbeck that it is just arrived, so the planned interview for this number will skip to the next.

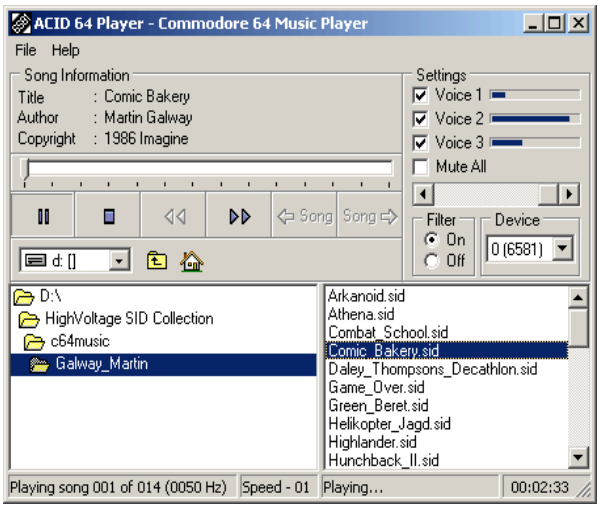
Bye
S.T.

News

Some various news of players, programs , competition and hardware:

- Acid64 Player 1.0
- amaroK 0.5.1
- composers.c64.org updated
- SID2TIA
- SID in-depth information site
- Goattraker 1.4C/D/F
- Sidplay2/w
- SidAsm 1.0
- HVSC 5.4
- Hardsid PCI
- JC64Dis beta 1
- SIDPlayer 4.3
- Resid 0.15
- The SID COMPO III
- HVSC 5.5
- HVSID player plugin v3
- NinjaTracker v1.05

Acid64 Player 1.0



ACID 64 player is a Commodore 64 music player for Windows that will play SID tunes on a HardSID card or Catweasel MK3 PCI/Flipper.

It emulates the MOS 6510 micro processor to run the code of a SID tune and controls the cards for playing the music on a real 6581 or 8580 SID chip.

Features:

- Supports all HardSID cards
- Emulation of all 6510 instructions including all undocumented opcodes
- Exact timing for normal speed and multi speed songs
- Note press indicator bar for each voice
- Up to 20 times fast forward
- Mute & solo voices and change of master volume
- Toggle filter on/off
- Switch easy to different HardSID device
- Drag & drop support for multiple files
- Minimize to system tray for background playing
- Go back and forward in the history of played songs

Released on 30 July 2003 by Wilfred Bos, you can download the player from http://www.acid64.-com

amaroK 0.5.1

amaroK is a new media player for KDE.

There are many media players around these days, true. What's missing from most players is a user interface, that doesn't get in the way of the user.

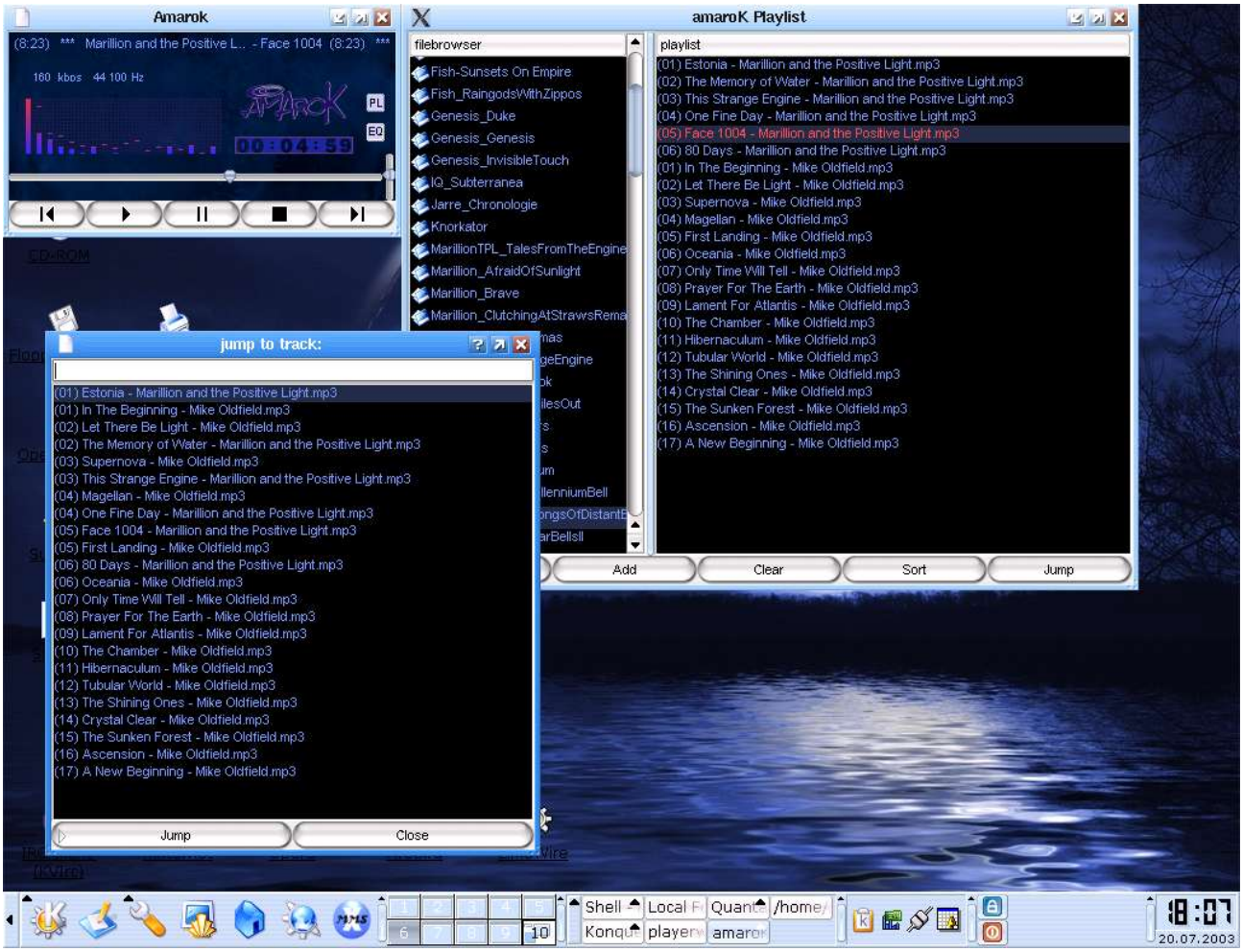
How many buttons do you have to press for simply adding some new tracks to the playlist?

amaroK tries to be a little different, providing a simple drag and drop interface, that really makes playlist handling easy.

- fresh playlist concept, very fast to use, with drag and drop
- plays all formats supported by aRts, including mp3, ogg, audio CDs, streams
- audio effects, like reverb and compressor
- compatible with the .m3u and .pls formats for playlists
- nice GUI, integrates into the KDE look, but with a unique touch

The last stable version of the player is 0.5.1, but the new 0.6.0 is being developed.

The good thing about this project is that there is a plugin for reproducing sid files.



The Mark Kretschmann's project is available at: http://amarok.sourceforge.net/

composers.c64.org updated

The composers page is now converted to a database, with a totally new layout. It was added 51 new composers, and better photos for 28 composers, for a total of 328 composers.

The new system is very fast in comparison to the previous and more better organized.

SID2TIA

Maybe all Atari users around had dreams about listen some Sid tunes into their computer.

Now, Cybergoth have wrote an utility that convert sid music into the Atari 2600 VCS's chip, with very good result.

The utility use the TinySID engine and after every player call, the sid registers contents are matched as better as possible with TIA registers.

Look at this thread http://www.atariage.com/forums/viewtopic.php?t=33036 or go to see http://home.arcor.de/cybergoth/

SID in-depth information site

There is a very interesting site about Sid that you may visit: http://www.kubarth.de/sid

You can found technical articles, sid history, die photos, link to hardware devices that use the sid chip and lot of software players.

The project need your help in founding new resources about the sid, so don't hesitate to take a look.

Goattraker 1.4c/d/e/f

Released on 20 September 2003 the version 1.4c and just one month later the version 1.4d of the Cadaver's C64 tracker that run into a PC computer.

Goattracker (both mono and stereo versions) was updated for better hardrestart handling (wavetable also executed on hardrestart frame) and possibility for manual fadein/out of music.

The 1.4d version contains bug fixes for $D418 and arpeggio execution.

Version 1.4e contains the resid-015 engine and was released in December and version 1.4f released in January contains Funktempo capability.

Download the mono version at http://covertbitops.c64.org/tools/goattrk.zip, and the stereo version at http://covertbitops.c64.org/tools/gstereo.zip

Sidplay2/w

On 23 September 2003, the Windows sid player Sidplay2/w was released.

In this version you can found:

- It is now possible to change subtune in the playlist edit for tunes with over 6 subtunes
- The playlist view keeps selection after the user chooses a new tune to play
- File|Open and File|Save remembers the file type from last run
- Lots of libsidplay2 emulation improvements. The major ones are:
  + VIC emulation improved, adding cycle-stealing
  + Support for BASIC tunes
  + Real C64 environment improved

Download the player from: http://www.student.nada.kth.se/~d93-alo/c64/spw/

SidAsm 1.0

On 30th September 2003 Gufino released SidDasm V1.0. The program produces disassembler output of SID music files and works good for about 99% of sid files. It is able to separate data from code, so try it. Both DOS version & Linux version are available for download:
http://www.student.oulu.fi/~loorni/covert/tools/siddasm1.zip
http://www.student.oulu.fi/~loorni/covert/tools/siddasm1.tar.gz

HVSC 5.4

On 9 October 2003, the High Voltage SID Collection Update #36 was released.

After this update, the collection should contain 21,272 SID files!

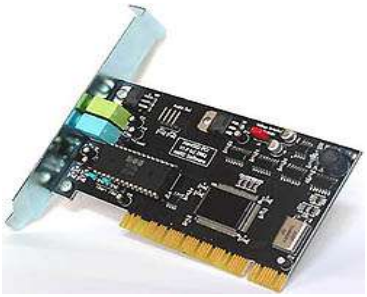
This update features (all approximates):
- 566 new SIDs
- 265 fixed/better rips
- 52 fixes of PlaySID/Sidplay1 specific SIDs
- 9 repeats/bad rips eliminated
- 283 SID credit fixes

Download the update and the tools from http://www.hvsc.c64.org

Hardsid PCI

On 15/10/2003 the HardSid single-chip card was released at http://www.hardsid.com

You can read a complete review at
http://www.cbmzone.com/cgi-bin/index.pl?action=viewnews&id=21



JC64Dis beta 1

Released the new version of the Java disassembler JC64Dis.

JC64Dis is able to disassembly both prg and sid files, giving comment to know memory location used by the programs. Also, it is able to give the instructions flow of sidplayer MUS file.

From this version, it uses a memory state file produced by patched SIDLD (Sid length detector), so sid file can be disassembled knowing the memory location used for code and for data.

Download from http:\\www.sf.net\projects\jc64

SIDPlayer 4.3

Released in early 2003 the new version of Christian Bauer sid player at http://www.uni-mainz.de/~bauec002/SPMain.html

This player use SDL library and is so easy to compile in every operating system. The last version had:

- Added support for Catweasel SID hardware in SDL version (use option "--cwsid on"), CIA timer speed control now actually works

The program is affected by a bug that prevent setting IRQ during the *play* section (some Master-composer tunes did not sound correctly).
In the CVS repository there is already a fixed version.

Resid 0.15

The last know bug of the Resid engine is now removed. This bug affects the Delay ADSR bug duration.

You can download the stuff here:
ftp://ftp.funet.fi/pub/cbm/crossplatform/emulators/resid/resid-0.15.tar.gz

According to Dag Lem, try to listen to these tunes with the new engine that where for sure affected by the previous engine bug:

/VARIOUS/A-F/Behdad_Arman/Revenge.sid
/VARIOUS/M-R/Mixer/SurSumTheme.sid

The SID COMPO III

Even this year at http://www.c64.sk there was the Sid Compo (from 8 october to 8 november).

This year there was anonymous submission and composers jury voting system.

You can download the 43 tunes (in PSID or C64 format), read the comments, and the final classifications at: http://www.c64.sk/index.php?content=article.php&articleid=80&id=1675

Here I just report the two classifications:

Yury Rank:

(191 pts) "Floatee" 3:30 (8580) by Kamil Wolnikowski (Jammer) [2003 Multistyle Labs/Samar]
(181 pts) "Shining Hour" 4:37 (8580) by Stellan Andersson (Dane) [2003 Crest]
(158 pts) "Cybersoap" 4:58 (6581) by Timo Taipalus (Abaddon) [2003 Damage/FairLight]
(151 pts) "One Hit Wonder" 2:35 (8580) by Alexander Rotzsch (Fanta) [2003 Fanta]
(145 pts) "Downtown Connection" 3:22 (8580) by Michal Hoffmann (Smalltown Boy) [2003 MultiStyle Labs]
(131 pts) "Illumination" 3:34 (6581) by Lasse Öörni (Cadaver) [2003 Covert Bitops]
(120 pts) "Downstairs Funk" 2:25 (6581) by Glenn Rune Gallefoss [2003 SHAPE/Blues Muz']
(96 pts) "MUmaid" 4:52 (8580) by Vincent Merken (Vip) [2003 ViruZ]
(87 pts) "Celebrating Samhain" 4:06 (6581) by Rafal Kazimierski (Asterion) [2003 Samar]
(80 pts) "Kingston's Sick" 2:50 (8580) by Ronny Engmann (dalezy) [2003 Creators]
(79 pts) "Short Metamorphosis" 2:50 (8580) by Stefan Uram (Orcan) [2003 Orcan]
(73 pts) "Dropping the Dishes" 3:05 (8580) by Gerard Hultink [2003 Gerard Hultink]
(68 pts) "My Output Is Danceable" 4:05 (8580) by Mark Waldaukat (Heinmukk) [2003 Salva Mea]
(66 pts) "O Boy" 2:24 (6581) by Yodelking & UL-Tomten [2003 Defiers]
(53 pts) "The-End" 3:30 (6581) by Kent Hofling (Kenho) [2003 4ba]
(51 pts) "Nekkid On All Fours" 2:44 (6581) by Marc van den Bovenkamp (No-XS) [2003 Toondichters]
(51 pts) "Forgotten 80's" 2:23 (8580) by Marcin Romanowski (Sidder) [2003 MultiStyle Labs/Role]
(51 pts) "Gradius Supernova '86" 4:42 (8580) by Luca Carrafiello (Luca) [2003 FIRE]
(51 pts) "Monolith" 6:35 (8580) by Mark Thomas Ross (MTR1975) [2003 FunkScientist Productions]
(50 pts) "Nipponesque xperience" 2:43 (6581) by Daniel M. Gartke (Turtle) [2003 The Demented]
(41 pts) "The Final Dance" 3:35 (8580) by Arman Behdad (Intensity) [2003 Onslaught/Cosine]
(32 pts) "Intelligent_Technology" 3:46 (8580) by Pontus Olsson (pOnToNiuS) [2003 pOnToNiuS]
(30 pts) "Purity" 2:24 (6581) by Aleksi Eeben [2003 CNCD]
(29 pts) "Pure" 2:01 (6581) by Bekir Ogurlu (Slowhand) [2003 Independent]
(27 pts) "Le Tartar and Pretzelism" 6:40 (8580) by Stephan Drost (Pater Pi) [2003 Church 64]
(23 pts) "Equation of Time" 2:37 (6581) by Kursad Karamahmutoglu(Hydrogen) [2003 Bronx]
(22 pts) "DataDataDataData" 3:55 (6581) NTSC by Akira K [2003 Kiken Corporation]
(19 pts) "Divine Unconcern" 4:43 (6581) by Mariusz Cichy (Borgon) [2003 Borgon]
(19 pts) "Lost Memories " 3:04 (6581) by Manuel Müller (CJ Rayne) [2003 X-Stayle]
(18 pts) "Chantelle" 4:06 (6581) by Andy Vaisey [2003 FunkScientist Productions]
(18 pts) "Dark Eagle" 3:10 (8580) by Trond Jensen (TDS) [2003 Creators]
(15 pts) "Jazzy" 1:55 (6581) by Carl Gustaf Liebe (Yaemon) [2003 Depredators Music Division]
(11 pts) "Eire Outcast" 2:05 (6581) by Anders Carlsson (Zapac) [2003 Zapac]
(8 pts) "Archnial" / 4:55 (6581) by Jaymz Julian (A Life in Hell) [2003 Warriors of the Wasteland]
(8 pts) "Sidcompo 3" 2:02 (6581) by maktone & Jonathan (natan1) [2003 FairLight]
(6 pts) "Choppy" 2:01 (6581) by Oliver VieBrooks (Six) [2003 Dark Lords of Chaos]
(6 pts) "Compus_Mentus" 3:45 (8580) by Andrew Fisher (Merman) [2003 People of Liberty/Role]
(4 pts) "Tauh" 2:19 (6581) by Pietari Toivonen (hukka) [2003 hukka]
(4 pts) "Trusted People" 5:37 (8580) by Richard Bayliss [2003 Civitas]
(0 pts) "Lichtblick" 4:15 (8580) by Robert Dörfler (Lordnikon) [2003 Civitas/Covenant/ULN/TLN]
(0 pts) "Strong Headache" 3:10 (8580) by Rafal Szyja (Raf) [2003 Samar/Beats Factory]
(0 pts) "Welcome Home" 2:40 (8580) by Pawel Ruczko (Murdock) [2003 Tropyx]
(000 pts) "Haunted" 6:34 (6581) (The juror haven't submited her rank) by Vanja Utne (Mermaid) [2003 Creators]

Audience Rank:

(413 pts) "Illumination" 3:34 (6581) by Lasse Öörni (Cadaver) [2003 Covert Bitops]
(409 pts) "Downtown Connection" 3:22 (8580) by Michal Hoffmann (Smalltown Boy) [2003 MultiStyle Labs]
(407 pts) "Shining Hour" 4:37 (8580) by Stellan Andersson (Dane) [2003 Crest]
(405 pts) "Cybersoap" 4:58 (6581) by Timo Taipalus (Abaddon) [2003 Damage/FairLight]
(405 pts) "Floatee" 3:30 (8580) by Kamil Wolnikowski (Jammer) [2003 Multistyle Labs/Samar]
(395 pts) "One Hit Wonder" 2:35 (8580) by Alexander Rotzsch (Fanta) [2003 Fanta]
(389 pts) "O Boy" 2:24 (6581) by Yodelking & UL-Tomten [2003 Defiers]
(373 pts) "Downstairs Funk" 2:25 (6581) by Glenn Rune Gallefoss [2003 SHAPE/Blues Muz']
(371 pts) "Kingston's Sick" 2:50 (8580) by Ronny Engmann (dalezy) [2003 Creators]
(368 pts) "Short Metamorphosis" 2:50 (8580) by Stefan Uram (Orcan) [2003 Orcan]
(363 pts) "Nekkid On All Fours" 2:44 (6581) by Marc van den Bovenkamp (No-XS) [2003 Toondichters]
(356 pts) "Forgotten 80's" 2:23 (8580) by Marcin Romanowski (Sidder) [2003 MultiStyle Labs/Role]
(353 pts) "Celebrating Samhain" 4:06 (6581) by Rafal Kazimierski (Asterion) [2003 Samar]
(352 pts) "Dropping the Dishes" 3:05 (8580) by Gerard Hultink [2003 Gerard Hultink]
(349 pts) "Nipponesque xperience" 2:43 (6581) by Daniel M. Gartke (Turtle) [2003 The Demented]
(338 pts) "MUmaid" 4:52 (8580) by Vincent Merken (Vip) [2003 ViruZ]
(330 pts) "My Output Is Danceable" 4:05 (8580) by Mark Waldaukat (Heinmukk) [2003 Salva Mea]
(322 pts) "Equation of Time" 2:37 (6581) by Kursad Karamahmutoglu(Hydrogen) [2003 Bronx]
(321 pts) "Lost Memories " 3:04 (6581) by Manuel Müller (CJ Rayne) [2003 X-Stayle]
(321 pts) "Pure" 2:01 (6581) by Bekir Ogurlu (Slowhand) [2003 Independent]
(321 pts) "Monolith" 6:35 (8580) by Mark Thomas Ross (MTR1975) [2003 FunkScientist Productions]
(311 pts) "Tauh" 2:19 (6581) by Pietari Toivonen (hukka) [2003 hukka]
(310 pts) "The-End" 3:30 (6581) by Kent Hofling (Kenho) [2003 4ba]
(307 pts) "Jazzy" 1:55 (6581) by Carl Gustaf Liebe (Yaemon) [2003 Depredators Music Division]
(306 pts) "Gradius Supernova '86" 4:42 (8580) by Luca Carrafiello (Luca) [2003 FIRE]
(301 pts) "The Final Dance" 3:35 (8580) by Arman Behdad (Intensity) [2003 Onslaught/Cosine]
(299 pts) "Sidcompo 3" 2:02 (6581) by maktone & Jonathan (natan1) [2003 FairLight]
(299 pts) "Trusted People" 5:37 (8580) by Richard Bayliss [2003 Civitas]
(294 pts) "Le Tartar and Pretzelism" 6:40 (8580) by Stephan Drost (Pater Pi) [2003 Church 64]
(289 pts) "Intelligent_Technology" 3:46 (8580) by Pontus Olsson (pOnToNiuS) [2003 pOnToNiuS]
(277 pts) "Haunted" 6:34 (6581) by Vanja Utne (Mermaid) [2003 Creators]

(274 pts) "Archnial" / 4:55 (6581) by Jaymz Julian (A Life in Hell) [2003 Warriors of the Wasteland]
(272 pts) "Dark Eagle" 3:10 (8580) by Trond Jensen (TDS) [2003 Creators]
(265 pts) "Purity" 2:24 (6581) by Aleksi Eeben [2003 CNCD]
(257 pts) "Eire Outcast" 2:05 (6581) by Anders Carlsson (Zapac) [2003 Zapac]
(244 pts) "Choppy" 2:01 (6581) by Oliver VieBrooks (Six) [2003 Dark Lords of Chaos]
(243 pts) "Lichtblick" 4:15 (8580) by Robert Dörfler (Lordnikon) [2003 Civitas/Covenant/ULN/TLN]
(242 pts) "Chantelle" 4:06 (6581) by Andy Vaisey [2003 FunkScientist Productions]
(239 pts) "Compus_Mentus" 3:45 (8580) by Andrew Fisher (Merman) [2003 People of Liberty/Role]
(237 pts) "Welcome Home" 2:40 (8580) by Pawel Ruczko (Murdock) [2003 Tropy]
(232 pts) "DataDataDataData" 3:55 (6581) NTSC by Akira K [2003 Kiken Corporation]
(229 pts) "Divine Unconcern" 4:43 (6581) by Mariusz Cichy (Borgon) [2003 Borgon]
(152 pts) "Strong Headache" 3:10 (8580) by Rafal Szyja (Raf) [2003 Samar/Beats Factory]

HVSC 5.5

Released on 19/12/2003 the Christmas update 37 of HVSC with lot of tunes and some stuff from old composers.

After this update, the collection should contain 23,453 SID files!

This update features (all approximates):

```
  1977 new SIDs
    97 fixed/better rips
   219 fixes of PlaySID/Sidplay1 specific SIDs
     7 repeats/bad rips eliminated
   197 SID credit fixes
    86 tunes moved out of /DEMOS to their composers' directories
     4 tunes from /DEMOS/UNKNOWN identified
    15 tunes moved out of /GAMES to their composers' directories
```

It's Christmas time again, and like every year we have prepared something very special for you all:

Not only do we bring you 2 2 8 0 SID tunes (of which almost 2 0 0 0 are new ones), but we also decided that it's not much use having hundreds of digi rips lying around in our Unreleased archive. So for all the people who are listening to SID music on a real C64 this might be good news:

We added all 219 RSID fixes of PSID specific rips in HVSC! Most, if not all of them are digi tunes, keep in mind that they can only be listened to on a real C64 or Sidplay2.

Also be sure to check out Martin Galway's directory after the update:

Thanks to Chris Abbott's great connection to Martin Galway and Alistair "Boz" Bowness ripping skills we can finally present you the probably most sought after SID tune on this planet:

The long lost Street Hawk is here in two fantastic versions, one prototype with less effects and the final version with bells and whistles that ought to be used in the game. And of course: Kudos to Martin Galway, who kindly provided his disks!

What more is there to discover in this update?

- A lot of new tunes from classic composers, such as 20CC, Neil Baldwin, Wally Beben, Matthew Cannon, Mark Cooksey, Ian Crabtree, Deek, Danko, Geoff Follin, Matt Gray, Stefan Hartwig, Ryo Kawasaki, Marcel Donné, Prosonix, Sonic Graffiti, Jeroen Tel, Michael Winterberg and many more.

- But also some of the current scene composers have unveiled their old tunes to us. Just to mention a few: Check out 4-Mat, Agemixer, Abaddon, Amorphis, Arman Behdad, Blues Muz', Britelite, Cyberbrain, Daf, Decoy, Ed, Factor6, Fanta, Goto80, Jammer, Klax, maktone, Megastyle, Merman, Mitch&Dane, Moog, Pater Pi, Rambones, Replay, Sad, Shapie, Skysurfer, SoNiC, Taxim, Welle:Erdball, Wizard and the fabulous Nylon.

- This update contains the compotunes from SID Compo 3, bcnparty 2003, Breakpoint 2003, Bronx $7d3, Primary Star 2003, Assembly 2003, Scenecon '03 and TUM'02 (and a couple more compotunes we found along the way).

- Furthermore, we've now added the remainder of the tunes that have appeared in the issues of the C64 disk magazine "Domination".
- To make HVSC friendlier to browse we added the following subdirectories:

```
/20CC:
======
/Paul_Falco
/van_Santen_Edwin

/FAME:
======
/Hendriks_Michael
/Knipping_Holger

/Rockin_Limited:
================
/Schaefers_Joerg

/SoedeSoft:
===========
/Soede_Jeroen
/Soede_Michiel

/VARIOUS/M-R/Mitch_and_Dane:
============================
/Dane
/Mitch
```

It looks nice and clean now and allows everybody to keep track of their favourite composers easier.

```
/VARIOUS/M-R/Megastyle/
=======================
```

The Megastyle musicians Rage, Crockett, Scroll, Lizard and Drumtex wished to be hosted under one roof, so we moved /VARIOUS/G-L/Lizard/ and /VARIOUS/M-R/Rage/ to the Megastyle directory.

HVSID player plugin v3

After more than 1.5 year passed, and the SID player plugin improved once again ;)
New features:

- RSID support
- 'Correct' author name display (iso-8859-1 -> petscii)
- bugfixed keyboard handling
- 51 bytes shorter ;)

Get it from:
http://singularcrew.hu/ide64warez/
ftp://c64.rulez.org/pub/c64/IDE64/Tools/Plugins/HVSID_player_v3b.zip

NinjaTracker v1.05

Released on 6 January 2004 the new version of the C64 music editor of Cadaver that now include a slide duration calculator.

Download the player here: http://covertbitops.c64.org/tools/ninjatrk.zip

Chris Huelsbeck Interview!

by Stefano Tognon

This time we can read this interview with Chris Huelsbeck that was done with some emails over the last months (thanks Chris). I think you already know Chris as Sid and Amiga composer, but if you are more young you can know he for his works on console games.

Hello, Chris,
I always start asking to speak about the real life: as you are very famous and well-know, maybe you could say something about your actual work if you prefer.

My life has changed quite a bit after I moved to the US in February of 1998. I worked since then on several high profile projects, like the Star Wars Rogue Squadron series for the Nintendo consoles. Other than my busy work, I lead a pretty relaxed life. But I am not famous like a Hollywood star and never felt that way, though I had some interesting moments in the early 90s with some fans following me everywhere at a trade show. I am also not rich as some people think. In my spare time I like to see movies and listen to (or make) music just for fun.

Speaking about the C64, you wrote your own music stuff (e.g. the Soundmonitor (musicmaster)): how many improvement did you give to your editor during his life and was you inspired to other tools for making them?

The Soundmonitor was my first big software project and was based on my third music player (the first was pretty basic for a friends game, the second was for Shades). After that I made 2 revisions of the player, one was more memory and CPU efficient (TFM, for "The Final Musicplayer" which funnily wasn't the final one at all ;) ,and the second one added my sample playback. Later I went actually back to non-sample SID sound because the later revisions of the C64 had problems with that and the games became so big and resource hungry. So I wrote another editor and player that was able to do some very wild SID effects and good drums without samples. It was called TFMX (which was for "The Final Musicsystem Extended" ;)

This is just a my historical curiosity: did you share/sell the source of your soundmonitor editor? (e.g. Rockmonitor 2/3 by Dutch USA-Team is a modified version of your player)

No, the Rockmonitor was a hack / reverse engineered by those guys.
Back then I was a bit mad about them, but not anymore...

If you still have the sources of your C64 works, what about donate them to the C64 community before the time damage the disks? (well, I'm an open source people, so the question is natural... :))

I saved almost everything from my old C64 disks and put them on the PC / CD-Roms, so nothing get's lost. I have thought about releasing some stuff incl. the sources, but I haven't found the time yet to sort through that chaos on those disks.

What do you think about people like me (but we are many more) that listen sid music every days and still compose music using a chip that is 20 years old?

I like to listen to the old tunes myself sometimes and maybe I will compose a new piece for the SID some day, who knows.

The most important question for all your fans: there will be the possibility that one day you compose a new C64 tune just for fun? Or, had you some not released C64 music work that is still in your old floppy?

Oops, I guess I just answered that one from the last question. And there may be a couple of unfinished pieces that sit in my collection somewhere, but I haven't found the time yet to go through all that stuff.

Now some quick final (standard) questions:
Real machine vs emulator: what do you think of?

The real machine is still the only choice if you want the right atmosphere and the smoothest SID sound. But nothing can beat the convenience of the emulators.

6581 vs 8580 chip: any (musical) preference?

There is only one true original and later C64 revisions where not as good with playback of samples, but the SID voices by themselves didn't sound that much different to me...

What is the worst sid that you compose and the better one?

The worst might be my ugly cover version of "Being Boiled". My favorite is Starball.

Who are your best sid authors?

Rob Hubbard, Martin Galway, Jeroen Tel and Ben Daglish

What are the best sids ever in your opinion?

Cybernoid, Monty on the run, One man and his droid, The Last V8, Wizball

Finally, many thanks for the time you give for this interview, and now you can say any things you want that the people will read from you!

Thanks for being patient with me when it comes to answering emails. I try my best to make everybody happy, but it sometimes just overwhelms me. You are welcome to visit my site at www.huelsbeck.com and watch out for new tunes on my mp3 page.

Webography [from Chris]:

Official site:
http://www.huelsbeck.com/

My Game Music CD label:
http://www.synsoniq.com

Check also my latest music releases:
http://www.electronicscene.com/huelsbeck

Music Engines Pattern Searching (part 2)

by Stefano Tognon <ice00@libero.it>

In issue 3 I describe how with pattern searching we can found music engines.

Now it's time to look to the Lada 'Ray' Lostack database of engines that contains the information of how to find about 450 engines.

In this page I will describe how the actual database is made, but some study is being done for eventually modify the format of the database for increasing his power.

Database format

The database is based onto entry formatted in C-like code:

```
Player {                ; begin of 'Player' block - the brace ('{') must be placed ON THE SAME LINE)

  Name=playername                   ; player name (sometimes author & player)
  ID=offset:value 1                 ; up to 16 IDs (see bellow) minimum of IDs are 3....
    .
  ID=offset:value N
  Message=offset:length  1          ; up to 16 different "messages"
    .                               ; if length is zero, message is zero padded
  Message=offset:length  N
  OrderPos=offset1,offset2,offset3 ; these addresses in C64 memory contains actual order position
  SecPos=offset1,offset2,offset3   ; these adresses contain the actual row in sector
}                                  ; mark for block end
```

The first field is *Name* where there is to put the name of the player (and/or author), for examples:

```
Name=DMC V4.0

Name=DMC V4 - clone I

Name=FALCO PAUL FX

Name=FUTURE COMPOSER 1.0

Name=JCH 02/NEWPLAYER V17.G1
```

The next important fields are the ID.
You must specify at least 3 ID for recognize an engine, but you can use a maximum of 16 ID.

One ID simply specifies the value we must found at the given offset (relative of absolute like we see later) into memory/file.

For finding an engine there is that all the values of the ID at the given offset must be matched.

Let me take an (invented) examples:

```
Player {

     Name=Example 1
     ID=$0000:$10
     ID=$0001:$11
     ID=$0003:$12
     ID=$0006:$13
}
```

This entry will found an engine like this that we found with this Perl pattern searching string (see issue 3):

```
'\x10\x11.\x12..\x13'
```

But now look at this example:

```
Player {

     Name=Example 2
     ID=$0001:$10
     ID=$0002:$11
     ID=$0004:$12
     ID=$0007:$13
}
```

What will this entry found? The same as example1?
Yes and no: now we see why.

Memory locations

This database derived from the Advanced Music Searcher AMS 5.0.415, a tools that run in a C64 and it is able to find if in memory there are some music engines loaded.

To do that, AMS scans the memory and applies the search of the IDs: the time required is proportional at the number of engines to found and by the number of memory locations it starts for applying the search.

```
C64 Memory (xx,yy,zz,ll,kk=some values):
$1000:  xx
$1001:  10
$1002:  11
$1003:  yy
$1004:  12
$1005:  zz
$1006:  ll
$1007:  13
$1008:  kk
```

Suppose that AMS applies the searching each $1000 bytes: so from $0000, to $1000, then $2000,...
If AMS searches for *Example1* player, it will found that at memory location $1000+$0000 there is the value *xx* that is not the expected (*10*), so *Example1* is not found.
But when search for *Example2*, it finds that the value at $1000+$0001 is 10 as expected. Then the value at $1000+$0002 is 11, and so on for all the other values: *Example2* player is found.

However, if AMS will search using a 1 byte step in memory ($1000, then $1001, then $1002,...) it will found that the player in memory is both *Example1* and *Example2*

So *Example1* and *Example2* identify the same player.

At this point is simple to understand that the relative offsets in the ID are respect at the point where the program will apply the search in memory.

It is most probably that AMS use step of $100 bytes, as usually a player can be relocated in fixed memory location: you will found that a player locates the tune at $1000 but not a $1001 (and so *Example2* is the right player pattern to use).

So, when producing an entry, which offset may we use?

ID offset

The answer to the previous question is simple: depending of how the database will be used.

Think to possible applications:

- Sidplayers
- C64 emulators
- Sid ripping tools
- Real C64

And now we see each case:

1. Real C64

In this case the answer is simple: offset must be relative to some fixed memory locations based onto steps of $100 or $200. The time needed for a complete scan with a big database is high, and so applications (like AMS) must have an database based onto these type of offset.
But are this kind of applications to use anymore in a real C64? I think that as today the C64 music is stored into PSID (RSID) files, there are no needed of use this database in the real C64 for knowing the engine used by the sid being listen: it is only necessary that tools like PSID64 calculates the engine used by the PSID file being converted during the generation of the C64 prg file. This calculation is made using a PC, and so we are in the other category of programs.

2. Sidplayers, C64 emulators, Sid ripping tools

All these programs are running into PC, so there is no power problem in running the searching byte by byte in memory.

I would like to motive why the above category of programs can take advantage of using the database of engines:

- C64 emulators

If a ripper loads a program, that must be ripped, into a C64 emulator, it should be good if an option of the emulator will start the scan of the (emulated) memory for searching for known engines: if a ripper know the engine he is being ripped it will be more simple his work.

- Sid ripping tools

If a ripper uses specific tools (like PSIDedit) for ripping, this is like the previous case.

- Sidplayers

I think that it is very interesting to read with which engines a PSID tune is made directly into the sidplayer that is reproducing the music.

The last thing to say for ID offset is that you can even specify absolute offset, like in this example:

```
Player {
     Name=Example 3
     ID=#$0300:$10
     ID=#$0301:$11
     ID=#$0303:$12
}
```

In this case the searching of byte $10 is done at the absolute memory location $0300, $11 in $301 and $12 in $0303.

Even if this can be a good methods for finding engines that put special value into fixed memory locations, I think that you must not use this technique anymore.

In fact, only programs that have an emulated C64 memory (like sidplayers, C64 emulators) can look for these fixed values.
Instead, tools like SIDedit that manage PSID file and so they not have an emulated memory, cannot recognize engines that use absolute memory locations.

Messages

This special field in the player entry can be used by a sidplayer to show information that could be contained into the music.

You can specify a maximum of 16 messages like in this examples:

```
Message=$0012:10
Message=$0530:0
```

In the first we say that a message of length 10 is contained at relative offset $0012, while in the second, a message with a variable length (it finishes when a 0 is fount) is positioned at relative offset $0530

Actually, there are no entry in the database that use messages, but engines like Compute's Gazette Sidplayer could take advantage of messages.

Order/Sector

Probably the most difficult to understand fields of the database format are OrderPos and SecPos.
These fields specify where in C64 memory there are the actual values of Order position and Sector position.

The syntax need that 3 offset (relative/absolute) values must be specify: one for each sid voices.

Here an example:

```
OrderPos=$0921,$0922,$0923
SecPos=$0924,$0924,$0926
```

Well, but what are order and sector?

If you are a musician, you probably know that many kind of music editor/tracker use tracks and sectors for let you insert the music like in this example:

```
Track v1:  01 02 03 01 01 00
Track v2:  06 06 06 05 05 00
Track v3:  08 07 08 07 04 00

Sector 01: ins1 dur3 C4 C5 D4 D5
Sector 02: ins1 dur1 A2 dur3 A3
...
Sector 08: inst3 dur4 B4 B4 B3 B3
```

When the player reproduce your music, he starts with track v1/sector 01 and so put C4 C5 D4 D5 notes, then track v1/sector 02 with A2, A3 notes and so on (in the same time he manages even the tracks/patterns for the other 2 voices in the same manner).

For doing this, many players stored the actual values of tracker position and sector position in some memory locations: these are the positions we need for OrderPos and SecPos.

```
OrderPos voice1  01.................|02........|
SecPos voice1    01...02...03...04...|01..02....|

OrderPos voice2  06.......|06.......|
SecPos voice2    01.. 02..|01.. 02..|

OrderPos voice3  08.........................|08.........................|
SecPos voice3    01.....02.....03.....04.....|01.....02.....03.....04.....|
```

The above graph try to show what values are stored into OrderPos memory location for voice 1, 2 and 3, and SecPos for voice 1, 2 and 3 at each player call (timing are all invented).

We see that OrderPos for voice 1 start with values 01 and after that SecPos for voice 1 takes the values 01, 02, 03, 04 (the four notes C4 C5 D4 D5 to play), he passes to value 02.

Maybe now I think you know what are the true meaning of OrderPos and SecPos, but you probably are thinking what is a useful use we can make with these values.

The answer is simple:

- We can have a sidplayer that shows in realtime what the player is doing (using some patter lines you can really figure how music is made).
- Detect the true length of the music.

If you are wondering how the last point can be reached, I let you some hint.

In all the players that use track position, there are special values (usually $FF and $FE) that are used for determine what to do when the track is finished:

1. One value means to restart the track from the beginning
2. The other means to stop the sound generation for this voice because the music is finished

So, for examples, if in a player call we see that the OrderPos value change 2 values, we are experimenting the case of track restarting and if this has happened for all the 3 voices, then for sure the tune is completely restarted:

```
Track1: 01 02 03 FE
Track2: 05 05 06 07 07 07 FE
Track3: 08 08 FE
```

In this example, the tune will be completely restart when the voice 2 restart, because if we see the voice restarting we see something like this:

```
Start       V3 restart   V1 restart   V3 restart   V2 restart
```

So only when all the voices are restarting we can saw that the tune is finished.

In the type 2 of track final signature, we can saw that the tune is finished as soon as the SecPos value did not change anymore after the OrderPos value where changed.

The last thing to say about OrderPos and SecPos is that some player use only one location as all the tree voices use the same track, like in this example:

```
Common Track: 01 02 03 ...

Sector 01:
Voice 1 note1 note2 note3...
Voice 2 note1 note2 note3...
Voice 3 note1 note2 note3...
```

As you can see, in this case we must specify the same values for OrderPos and SecPos, like in this example:

```
Player {

     Name=TAXIM?
     ID=$0001:$12
     ID=$0002:$C0
     ID=$0004:$0D
     OrderPos=#$02C1,#$02C1,#$02C1
     SecPos=#$02C0,#$02C0,#$02C0
}
```

Examples

Ok, now it's time to give a complete example taken from the database

- Future Composer 1 player

```
Player {

     Name=FUTURE COMPOSER 1.0
     ID=$0006:$AD
     ID=$0007:$74
     ID=$0009:$C9
     ID=$000A:$02
     OrderPos=$0921,$0922,$0923
     SecPos=$0924,$0924,$0926

}
```

Ok, there are more than 1000 tunes in HVSC that use this player, so I take one of them: /VARIOUS/G-L/Luca/Moonlight_shadow.sid and present here a partial SIDedit disassembly

```
;1800    4C 08 21    JMP $2108
;1803    4C 17 21    JMP $2117
;1806    AD 74 21    LDA $2174
;1809    C9 02       CMP #$02
;180B    F0 07       BEQ 1814
;180D    C9 01       CMP #$01
;180F    D0 19       BNE 182A
;1811    4C E8 20    JMP $20E8
;1814    60          RTS
;1815    01 26       ORA ($26,X)
;1817    EE 16 18    INC $1816
;181A    EE 16 18    INC $1816
;181D    AD 16 18    LDA $1816
;1820    C9 32       CMP #$32
;1822    D0 05       BNE 1829
;1824    A9 01       LDA #$01
;1826    8D 15 18    STA $1815
;1829    60          RTS
;182A    EE 42 21    INC $2142
;182D    EE 43 21    INC $2143
;1830    EE 44 21    INC $2144
;1833    A9 1F       LDA #$1F
;1835    8D 18 D4    STA $D418
;1838    A2 02       LDX #$02
;183A    CE 73 21    DEC $2173
;183D    10 06       BPL 1845
;183F    AD 1D 21    LDA $211D
;1842    8D 73 21    STA $2173
;1845    2C 20 D0    BIT $D020
;1848    86 FF       STX $FF
;184A    BD 1E 21    LDA $211E,X
;184D    8D 56 21    STA $2156
;1850    A8          TAY
;1851    AD 73 21    LDA $2173
;1854    CD 1D 21    CMP $211D
;1857    D0 12       BNE 186B
;1859    BD A1 1E    LDA $1EA1,X
;185C    85 FB       STA $FB
;185E    BD A4 1E    LDA $1EA4,X
```

```
;1861    85 FC       STA $FC
;1863    DE 27 21    DEC $2127,X
;1866    30 06       BMI 186E
;1868    4C FA 19    JMP $19FA
;186B    4C 0A 1A    JMP $1A0A
;186E    BC 21 21    LDY $2121,X          ; read OrderPos
;1871    B1 FB       LDA ($FB),Y
;1873    C9 FE       CMP #$FE             ; end mark
;1875    F0 15       BEQ 188C
;1877    C9 FF       CMP #$FF             ; end mark
;1879    D0 19       BNE 1894
;187B    A9 00       LDA #$00
;187D    9D 27 21    STA $2127,X
;1880    9D 21 21    STA $2121,X          ; reset OrderPos
;1883    9D 24 21    STA $2124,X          ; reset SecPos
;1886    8D 72 21    STA $2172
;1889    4C 6E 18    JMP $186E
;188C    A9 02       LDA #$02
;188E    8D 74 21    STA $2174
;1891    4C 0B 21    JMP $210B
;1894    8D 67 21    STA $2167
;1897    29 80       AND #$80
;1899    F0 0E       BEQ 18A9
;189B    AD 67 21    LDA $2167
;189E    29 1F       AND #$1F
;18A0    9D 4F 21    STA $214F,X
;18A3    FE 21 21    INC $2121,X          ; next OrderPos
;18A6    4C 6E 18    JMP $186E
;18A9    AD 67 21    LDA $2167
;18AC    29 40       AND #$40
;18AE    F0 0E       BEQ 18BE
;18B0    AD 67 21    LDA $2167
;18B3    29 3F       AND #$3F
;18B5    9D 76 21    STA $2176,X
;18B8    FE 21 21    INC $2121,X          ; next OrderPos
;18BB    4C 6E 18    JMP $186E
;18BE    AD 67 21    LDA $2167
;18C1    0A          ASL
;18C2    A8          TAY
;18C3    B9 A7 1E    LDA $1EA7,Y
;18C6    85 FD       STA $FD
;18C8    B9 A8 1E    LDA $1EA8,Y
;18CB    85 FE       STA $FE
;18CD    A9 00       LDA #$00
;18CF    9D 3F 21    STA $213F,X
;18D2    BC 24 21    LDY $2124,X          ; next SecPos
;18D5    9D 42 21    STA $2142,X
;18D8    A9 03       LDA #$03
;18DA    9D 61 21    STA $2161,X
;18DD    B1 FD       LDA ($FD),Y
;18DF    85 F8       STA $F8
;18E1    29 F0       AND #$F0
;18E3    C9 F0       CMP #$F0
;18E5    D0 10       BNE 18F7
;18E7    A9 01       LDA #$01
;18E9    9D 80 21    STA $2180,X
;18EC    FE 24 21    INC $2124,X          ; next SecPos
;18EF    C8          INY
;18F0    B1 FD       LDA ($FD),Y
;18F2    85 F8       STA $F8
;18F4    4C 57 19    JMP $1957
;18F7    A9 00       LDA #$00
;18F9    9D 80 21    STA $2180,X
;18FC    A5 F8       LDA $F8
;18FE    29 F0       AND #$F0
;1900    C9 E0       CMP #$E0
;1902    D0 2C       BNE 1930
;1904    A5 F8       LDA $F8
;1906    29 01       AND #$01
;1908    18          CLC
;1909    69 01       ADC #$01
;190B    9D 3F 21    STA $213F,X
;190E    A5 F8       LDA $F8
;1910    29 0E       AND #$0E
;1912    4A          LSR
;1913    8D 65 21    STA $2165
;1916    FE 24 21    INC $2124,X          ; next SecPos
;1919    C8          INY
;191A    B1 FD       LDA ($FD),Y
;191C    48          PHA
;191D    29 F0       AND #$F0
;191F    8D 64 21    STA $2164
;1922    68          PLA
;1923    29 0F       AND #$0F
;1925    8D F8 1A    STA $1AF8
;1928    FE 24 21    INC $2124,X          ; next SecPos
;192B    C8          INY
;192C    B1 FD       LDA ($FD),Y
;192E    85 F8       STA $F8
;1930    A5 F8       LDA $F8
;1932    29 E0       AND #$E0
```

```
;1934    C9 C0       CMP #$C0
;1936    D0 0A       BNE 1942
;1938    A5 F8       LDA $F8
;193A    29 1F       AND #$1F
;193C    9D 33 21    STA $2133,X
;193F    20 ED 19    JSR $19ED
;1942    A5 F8       LDA $F8
;1944    29 C0       AND #$C0
;1946    C9 80       CMP #$80
;1948    D0 0D       BNE 1957
;194A    A5 F8       LDA $F8
;194C    29 3F       AND #$3F
;194E    9D 2A 21    STA $212A,X
;1951    20 ED 19    JSR $19ED
;1954    4C DD 18    JMP $18DD
;1957    BD 2A 21    LDA $212A,X
;195A    9D 27 21    STA $2127,X
;195D    A5 F8       LDA $F8
;195F    18          CLC
;1960    7D 4F 21    ADC $214F,X
;1963    9D 30 21    STA $2130,X
;1966    A8          TAY
;1967    B9 64 1D    LDA $1D64,Y
;196A    48          PHA
;196B    B9 C4 1D    LDA $1DC4,Y
;196E    AC 56 21    LDY $2156
;1971    99 01 D4    STA $D401,Y
;1974    9D 36 21    STA $2136,X
;1977    9D 39 21    STA $2139,X
;197A    68          PLA
;197B    99 00 D4    STA $D400,Y
;197E    9D 3C 21    STA $213C,X
;1981    BD 80 21    LDA $2180,X
;1984    D0 46       BNE 19CC
;1986    BD 33 21    LDA $2133,X
;1989    0A          ASL
;198A    0A          ASL
;198B    0A          ASL
;198C    AA          TAX
;198D    8E 52 21    STX $2152
;1990    BD 8A 21    LDA $218A,X
;1993    99 05 D4    STA $D405,Y
;1996    BD 8B 21    LDA $218B,X
;1999    99 06 D4    STA $D406,Y
;199C    BD 8C 21    LDA $218C,X
;199F    48          PHA
;19A0    BD 88 21    LDA $2188,X
;19A3    48          PHA
;19A4    BD 89 21    LDA $2189,X
;19A7    A6 FF       LDX $FF
;19A9    9D 2D 21    STA $212D,X
;19AC    9D 79 21    STA $2179,X
;19AF    A9 00       LDA #$00
;19B1    99 02 D4    STA $D402,Y
;19B4    9D 45 21    STA $2145,X
;19B7    68          PLA
;19B8    9D 4B 21    STA $214B,X
;19BB    29 0F       AND #$0F
;19BD    99 03 D4    STA $D403,Y
;19C0    9D 48 21    STA $2148,X
;19C3    A9 01       LDA #$01
;19C5    9D 6F 21    STA $216F,X
;19C8    68          PLA
;19C9    9D 6C 21    STA $216C,X
;19CC    FE 24 21    INC $2124,X         ; next SecPos
;19CF    BC 24 21    LDY $2124,X
;19D2    B1 FD       LDA ($FD),Y
;19D4    C9 FF       CMP #$FF            ; end mark
;19D6    D0 12       BNE 19EA
;19D8    A9 00       LDA #$00
;19DA    9D 24 21    STA $2124,X
;19DD    BD 76 21    LDA $2176,X
;19E0    F0 05       BEQ 19E7
;19E2    DE 76 21    DEC $2176,X
;19E5    10 03       BPL 19EA
;19E7    FE 21 21    INC $2121,X
;19EA    4C 52 1D    JMP $1D52
;19ED    FE 24 21    INC $2124,X         ; next SecPos
;19F0    C8          INY
;19F1    B1 FD       LDA ($FD),Y
;19F3    C9 FF       CMP #$FF            ; end mark
;19F5    F0 E1       BEQ 19D8
;19F7    85 F8       STA $F8
;19F9    60          RTS
;19FA    AC 56 21    LDY $2156
;19FD    BD 42 21    LDA $2142,X
;1A00    F0 08       BEQ 1A0A
;1A02    BD 2D 21    LDA $212D,X
;1A05    29 FE       AND #$FE
;1A07    9D 79 21    STA $2179,X
;1A0A    BD 33 21    LDA $2133,X
```

```
;1A0D    0A          ASL
;1A0E    0A          ASL
;1A0F    0A          ASL
;1A10    A8          TAY
;1A11    B9 8D 21    LDA $218D,Y
;1A14    8D 53 21    STA $2153
;1A17    B9 8E 21    LDA $218E,Y
;1A1A    8D 54 21    STA $2154
;1A1D    B9 8F 21    LDA $218F,Y
;1A20    8D 55 21    STA $2155
;1A23    29 04       AND #$04
;1A25    D0 0C       BNE 1A33
;1A27    AD 55 21    LDA $2155
;1A2A    29 10       AND #$10
;1A2C    D0 05       BNE 1A33
;1A2E    AD 53 21    LDA $2153
;1A31    D0 03       BNE 1A36
;1A33    4C 30 20    JMP $2030
;1A36    48          PHA
;1A37    29 78       AND #$78
;1A39    4A          LSR
;1A3A    4A          LSR
;1A3B    4A          LSR
;1A3C    9D 58 21    STA $2158,X
;1A3F    68          PLA
;1A40    29 07       AND #$07
;1A42    8D 57 21    STA $2157
;1A45    BD 5B 21    LDA $215B,X
;1A48    F0 0A       BEQ 1A54
;1A4A    DE 5E 21    DEC $215E,X
;1A4D    D0 19       BNE 1A68
;1A4F    FE 5B 21    INC $215B,X
;1A52    10 14       BPL 1A68
;1A54    FE 5E 21    INC $215E,X
;1A57    BD 58 21    LDA $2158,X
;1A5A    DD 5E 21    CMP $215E,X
;1A5D    B0 09       BCS 1A68
;1A5F    9D 5E 21    STA $215E,X
;1A62    DE 5B 21    DEC $215B,X
;1A65    DE 5E 21    DEC $215E,X
;1A68    BD 30 21    LDA $2130,X
;1A6B    A8          TAY
;1A6C    B9 65 1D    LDA $1D65,Y
;1A6F    38          SEC
;1A70    F9 64 1D    SBC $1D64,Y
;1A73    8D 7F 21    STA $217F
;1A76    B9 C5 1D    LDA $1DC5,Y
;1A79    F9 C4 1D    SBC $1DC4,Y
;1A7C    7D 42 21    ADC $2142,X
;1A7F    4A          LSR
;1A80    CE 57 21    DEC $2157
;1A83    30 07       BMI 1A8C
;1A85    4A          LSR
;1A86    6E 7F 21    ROR $217F
;1A89    4C 80 1A    JMP $1A80
;1A8C    8D 7E 21    STA $217E
;1A8F    B9 64 1D    LDA $1D64,Y
;1A92    8D 7C 21    STA $217C
;1A95    B9 C4 1D    LDA $1DC4,Y
;1A98    8D 7D 21    STA $217D
;1A9B    BD 58 21    LDA $2158,X
;1A9E    4A          LSR
;1A9F    A8          TAY
;1AA0    88          DEY
;1AA1    30 16       BMI 1AB9
;1AA3    38          SEC
;1AA4    AD 7C 21    LDA $217C
;1AA7    ED 7F 21    SBC $217F
;1AAA    8D 7C 21    STA $217C
;1AAD    AD 7D 21    LDA $217D
;1AB0    ED 7E 21    SBC $217E
;1AB3    8D 7D 21    STA $217D
;1AB6    4C A0 1A    JMP $1AA0
;1AB9    BD 42 21    LDA $2142,X
;1ABC    C9 04       CMP #$04
;1ABE    90 2B       BCC 1AEB
;1AC0    BC 5E 21    LDY $215E,X
;1AC3    88          DEY
;1AC4    30 16       BMI 1ADC
;1AC6    18          CLC
;1AC7    AD 7C 21    LDA $217C
;1ACA    6D 7F 21    ADC $217F
;1ACD    8D 7C 21    STA $217C
;1AD0    AD 7D 21    LDA $217D
;1AD3    6D 7E 21    ADC $217E
;1AD6    8D 7D 21    STA $217D
;1AD9    4C C3 1A    JMP $1AC3
;1ADC    AC 56 21    LDY $2156
;1ADF    AD 7C 21    LDA $217C
;1AE2    99 00 D4    STA $D400,Y
;1AE5    AD 7D 21    LDA $217D
```

```
;1AE8    99 01 D4    STA $D401,Y
;1AEB    A6 FF       LDX $FF
;1AED    AC 56 21    LDY $2156
;1AF0    BD 2A 21    LDA $212A,X
;1AF3    38          SEC
;1AF4    FD 27 21    SBC $2127,X
;1AF7    C9 0F       CMP #$0F
;1AF9    90 46       BCC 1B41
;1AFB    BD 3F 21    LDA $213F,X
;1AFE    F0 41       BEQ 1B41
;1B00    29 03       AND #$03
;1B02    C9 01       CMP #$01
;1B04    F0 1F       BEQ 1B25
;1B06    AD 64 21    LDA $2164
;1B09    38          SEC
;1B0A    BD 3C 21    LDA $213C,X
;1B0D    ED 64 21    SBC $2164
;1B10    9D 3C 21    STA $213C,X
;1B13    99 00 D4    STA $D400,Y
;1B16    BD 36 21    LDA $2136,X
;1B19    ED 65 21    SBC $2165
;1B1C    9D 36 21    STA $2136,X
;1B1F    99 01 D4    STA $D401,Y
;1B22    4C 41 1B    JMP $1B41
;1B25    AD 64 21    LDA $2164
;1B28    18          CLC
;1B29    BD 3C 21    LDA $213C,X
;1B2C    6D 64 21    ADC $2164
;1B2F    9D 3C 21    STA $213C,X
;1B32    99 00 D4    STA $D400,Y
;1B35    BD 36 21    LDA $2136,X
;1B38    6D 65 21    ADC $2165
;1B3B    9D 36 21    STA $2136,X
;1B3E    99 01 D4    STA $D401,Y
;1B41    AD 54 21    LDA $2154
;1B44    F0 6C       BEQ 1BB2
;1B46    29 07       AND #$07
;1B48    A8          TAY
;1B49    88          DEY
;1B4A    98          TYA
;1B4B    0A          ASL
;1B4C    0A          ASL
;1B4D    A8          TAY
;1B4E    B9 95 1E    LDA $1E95,Y
;1B51    DD 42 21    CMP $2142,X
;1B54    90 03       BCC 1B59
;1B56    4C 63 1B    JMP $1B63
;1B59    C8          INY
;1B5A    C8          INY
;1B5B    B9 95 1E    LDA $1E95,Y
;1B5E    DD 42 21    CMP $2142,X
;1B61    90 0A       BCC 1B6D
;1B63    C8          INY
;1B64    B9 95 1E    LDA $1E95,Y
;1B67    8D 4E 21    STA $214E
;1B6A    4C 75 1B    JMP $1B75
;1B6D    AD 54 21    LDA $2154
;1B70    29 FC       AND #$FC
;1B72    8D 4E 21    STA $214E
;1B75    BD 6F 21    LDA $216F,X
;1B78    D0 1D       BNE 1B97
;1B7A    BD 45 21    LDA $2145,X
;1B7D    38          SEC
;1B7E    ED 4E 21    SBC $214E
;1B81    9D 45 21    STA $2145,X
;1B84    BD 48 21    LDA $2148,X
;1B87    E9 00       SBC #$00
;1B89    9D 48 21    STA $2148,X
;1B8C    C9 01       CMP #$01
;1B8E    B0 22       BCS 1BB2
;1B90    A9 01       LDA #$01
;1B92    9D 6F 21    STA $216F,X
;1B95    D0 1B       BNE 1BB2
;1B97    BD 45 21    LDA $2145,X
;1B9A    18          CLC
;1B9B    6D 4E 21    ADC $214E
;1B9E    9D 45 21    STA $2145,X
;1BA1    BD 48 21    LDA $2148,X
;1BA4    69 00       ADC #$00
;1BA6    9D 48 21    STA $2148,X
;1BA9    C9 0F       CMP #$0F
;1BAB    90 05       BCC 1BB2
;1BAD    A9 00       LDA #$00
;1BAF    9D 6F 21    STA $216F,X
;1BB2    A9 00       LDA #$00
;1BB4    8D D4 1B    STA $1BD4
;1BB7    BD 4B 21    LDA $214B,X
;1BBA    29 80       AND #$80
;1BBC    F0 0C       BEQ 1BCA
;1BBE    BD 42 21    LDA $2142,X
;1BC1    29 01       AND #$01
```

```
;1BC3    F0 05       BEQ 1BCA
;1BC5    A9 B0       LDA #$B0
;1BC7    8D D4 1B    STA $1BD4
;1BCA    A6 FF       LDX $FF
;1BCC    AC 56 21    LDY $2156
;1BCF    BD 45 21    LDA $2145,X
;1BD2    18          CLC
;1BD3    69 00       ADC #$00
;1BD5    99 02 D4    STA $D402,Y
;1BD8    BD 48 21    LDA $2148,X
;1BDB    69 00       ADC #$00
;1BDD    99 03 D4    STA $D403,Y
;1BE0    AD 55 21    LDA $2155
;1BE3    29 40       AND #$40
;1BE5    F0 14       BEQ 1BFB
;1BE7    A6 FF       LDX $FF
;1BE9    BD 42 21    LDA $2142,X
;1BEC    C9 03       CMP #$03
;1BEE    90 0B       BCC 1BFB
;1BF0    29 03       AND #$03
;1BF2    AA          TAX
;1BF3    BD 32 1E    LDA $1E32,X
;1BF6    A6 FF       LDX $FF
;1BF8    9D 79 21    STA $2179,X
;1BFB    8C 67 21    STY $2167
;1BFE    AD 55 21    LDA $2155
;1C01    29 01       AND #$01
;1C03    F0 2A       BEQ 1C2F
;1C05    A6 FF       LDX $FF
;1C07    8E 75 21    STX $2175
;1C0A    A9 89       LDA #$89
;1C0C    85 F9       STA $F9
;1C0E    A9 1E       LDA #$1E
;1C10    85 FA       STA $FA
;1C12    A6 FF       LDX $FF
;1C14    BD 42 21    LDA $2142,X
;1C17    A0 0B       LDY #$0B
;1C19    D1 F9       CMP ($F9),Y
;1C1B    B0 33       BCS 1C50
;1C1D    A0 0A       LDY #$0A
;1C1F    D1 F9       CMP ($F9),Y
;1C21    B0 38       BCS 1C5B
;1C23    88          DEY
;1C24    C0 06       CPY #$06
;1C26    D0 F7       BNE 1C1F
;1C28    D1 F9       CMP ($F9),Y
;1C2A    B0 06       BCS 1C32
;1C2C    4C 7B 1C    JMP $1C7B
;1C2F    4C 6A 1C    JMP $1C6A
;1C32    A5 FF       LDA $FF
;1C34    0A          ASL
;1C35    D0 03       BNE 1C3A
;1C37    18          CLC
;1C38    69 01       ADC #$01
;1C3A    8D 68 21    STA $2168
;1C3D    AE 72 21    LDX $2172
;1C40    8A          TXA
;1C41    2D 68 21    AND $2168
;1C44    D0 08       BNE 1C4E
;1C46    8A          TXA
;1C47    18          CLC
;1C48    6D 68 21    ADC $2168
;1C4B    8D 17 D4    STA $D417
;1C4E    A0 06       LDY #$06
;1C50    88          DEY
;1C51    88          DEY
;1C52    88          DEY
;1C53    88          DEY
;1C54    88          DEY
;1C55    88          DEY
;1C56    B1 F9       LDA ($F9),Y
;1C58    4C 73 1C    JMP $1C73
;1C5B    88          DEY
;1C5C    88          DEY
;1C5D    88          DEY
;1C5E    88          DEY
;1C5F    88          DEY
;1C60    88          DEY
;1C61    BD 69 21    LDA $2169,X
;1C64    18          CLC
;1C65    71 F9       ADC ($F9),Y
;1C67    4C 73 1C    JMP $1C73
;1C6A    A5 FF       LDA $FF
;1C6C    CD 75 21    CMP $2175
;1C6F    D0 0A       BNE 1C7B
;1C71    A9 FF       LDA #$FF
;1C73    A6 FF       LDX $FF
;1C75    9D 69 21    STA $2169,X
;1C78    8D 16 D4    STA $D416
;1C7B    AC 67 21    LDY $2167
;1C7E    AD 55 21    LDA $2155
```

```
;1C81    29 10       AND #$10
;1C83    F0 5E       BEQ 1CE3
;1C85    AD 53 21    LDA $2153
;1C88    29 0F       AND #$0F
;1C8A    AA          TAX
;1C8B    BD 3E 1E    LDA $1E3E,X
;1C8E    8D AF 1C    STA $1CAF
;1C91    BD 40 1E    LDA $1E40,X
;1C94    8D B0 1C    STA $1CB0
;1C97    BD 42 1E    LDA $1E42,X
;1C9A    8D B7 1C    STA $1CB7
;1C9D    BD 44 1E    LDA $1E44,X
;1CA0    8D B8 1C    STA $1CB8
;1CA3    A6 FF       LDX $FF
;1CA5    BD 42 21    LDA $2142,X
;1CA8    C9 0F       CMP #$0F
;1CAA    B0 34       BCS 1CE0
;1CAC    AA          TAX
;1CAD    CA          DEX
;1CAE    BD 56 1E    LDA $1E56,X
;1CB1    A4 FF       LDY $FF
;1CB3    99 79 21    STA $2179,Y
;1CB6    BD 46 1E    LDA $1E46,X
;1CB9    8D 68 21    STA $2168
;1CBC    AD 53 21    LDA $2153
;1CBF    29 10       AND #$10
;1CC1    F0 0C       BEQ 1CCF
;1CC3    A6 FF       LDX $FF
;1CC5    BD 30 21    LDA $2130,X
;1CC8    18          CLC
;1CC9    6D 68 21    ADC $2168
;1CCC    4C 42 1D    JMP $1D42
;1CCF    AC 56 21    LDY $2156
;1CD2    AD 68 21    LDA $2168
;1CD5    18          CLC
;1CD6    69 0D       ADC #$0D
;1CD8    99 01 D4    STA $D401,Y
;1CDB    A9 00       LDA #$00
;1CDD    99 00 D4    STA $D400,Y
;1CE0    4C 52 1D    JMP $1D52
;1CE3    AD 55 21    LDA $2155
;1CE6    29 80       AND #$80
;1CE8    F0 34       BEQ 1D1E
;1CEA    A6 FF       LDX $FF
;1CEC    AC 56 21    LDY $2156
;1CEF    BD 42 21    LDA $2142,X
;1CF2    C9 02       CMP #$02
;1CF4    B0 14       BCS 1D0A
;1CF6    A9 48       LDA #$48
;1CF8    99 01 D4    STA $D401,Y
;1CFB    A9 00       LDA #$00
;1CFD    99 00 D4    STA $D400,Y
;1D00    A6 FF       LDX $FF
;1D02    A9 81       LDA #$81
;1D04    9D 79 21    STA $2179,X
;1D07    4C 52 1D    JMP $1D52
;1D0A    BD 3C 21    LDA $213C,X
;1D0D    99 00 D4    STA $D400,Y
;1D10    BD 36 21    LDA $2136,X
;1D13    99 01 D4    STA $D401,Y
;1D16    BD 2D 21    LDA $212D,X
;1D19    29 FE       AND #$FE
;1D1B    9D 79 21    STA $2179,X
;1D1E    AD 55 21    LDA $2155
;1D21    29 04       AND #$04
;1D23    F0 2D       BEQ 1D52
;1D25    DE 61 21    DEC $2161,X
;1D28    10 05       BPL 1D2F
;1D2A    A9 02       LDA #$02
;1D2C    9D 61 21    STA $2161,X
;1D2F    A6 FF       LDX $FF
;1D31    BD 61 21    LDA $2161,X
;1D34    AA          TAX
;1D35    BD 86 1E    LDA $1E86,X
;1D38    85 41       STA $41
;1D3A    A6 FF       LDX $FF
;1D3C    BD 30 21    LDA $2130,X
;1D3F    18          CLC
;1D40    65 41       ADC $41
;1D42    AA          TAX
;1D43    AC 56 21    LDY $2156
;1D46    BD 64 1D    LDA $1D64,X
;1D49    99 00 D4    STA $D400,Y
;1D4C    BD C4 1D    LDA $1DC4,X
;1D4F    99 01 D4    STA $D401,Y
;1D52    A6 FF       LDX $FF
;1D54    AC 56 21    LDY $2156
;1D57    BD 79 21    LDA $2179,X
;1D5A    99 04 D4    STA $D404,Y
;1D5D    CA          DEX
;1D5E    30 03       BMI 1D63
```

```
;1D60    4C 45 18    JMP $1845
;1D63    60          RTS
...

;2000    A2 01       LDX #$01
;2002    8E 74 21    STX $2174
;2005    AA          TAX
;2006    BD D0 20    LDA $20D0,X
;2009    85 2C       STA $2C
;200B    BD D3 20    LDA $20D3,X
;200E    85 2D       STA $2D
;2010    A0 05       LDY #$05
;2012    B1 2C       LDA ($2C),Y
;2014    99 A1 1E    STA $1EA1,Y
;2017    88          DEY
;2018    10 F8       BPL 2012
;201A    4C 08 21    JMP $2108
...

;2030    AD 53 21    LDA $2153
;2033    F0 13       BEQ 2048
;2035    4A          LSR
;2036    4A          LSR
;2037    4A          LSR
;2038    4A          LSR
;2039    AA          TAX
;203A    AD 53 21    LDA $2153
;203D    29 0F       AND #$0F
;203F    8D 88 1E    STA $1E88
;2042    8E 87 1E    STX $1E87
;2045    4C DC 1A    JMP $1ADC
;2048    A9 18       LDA #$18
;204A    A2 0C       LDX #$0C
;204C    D0 F1       BNE 203F

...
;20D9    A9 00       LDA #$00
;20DB    A2 62       LDX #$62
;20DD    9D 21 21    STA $2121,X
;20E0    CA          DEX
;20E1    10 FA       BPL 20DD
;20E3    A9 B0       LDA #$B0
;20E5    8D 72 21    STA $2172
;20E8    A9 00       LDA #$00
;20EA    8D 42 21    STA $2142
;20ED    8D 43 21    STA $2143
;20F0    8D 44 21    STA $2144
;20F3    A2 02       LDX #$02
;20F5    9D 21 21    STA $2121,X
;20F8    9D 24 21    STA $2124,X
;20FB    9D 27 21    STA $2127,X
;20FE    9D 30 21    STA $2130,X
;2101    CA          DEX
;2102    10 F1       BPL 20F5
;2104    8D 74 21    STA $2174
;2107    60          RTS
;2108    20 D9 20    JSR $20D9
;210B    A2 00       LDX #$00
;210D    8A          TXA
;210E    2C 00 D4    BIT $D400
;2111    E8          INX
;2112    E0 18       CPX #$18
;2114    D0 F8       BNE 210E
;2116    60          RTS
;2117    A9 02       LDA #$02
;2119    8D 74 21    STA $2174
;211C    60          RTS
```

In the code, blue is the address for *OrderPos*, purple is the address of *SecPos,* red is the color of instructions used for the pattern, green are the marks indicator.
The best way for finding what addresses are *OrderPos* and *SecPos* is to search for the mark indicator ($FF, $FE), as they are very commons.

We see that the engine is detected only by fee bytes located in the beginning of the file. In particular, it is used a low byte of an LDA instruction: as the tune can be relocated, using even the high byte cannot detect all the tunes. Note, also, that it is used a low byte of a relocated tune, but it is quite common that a low byte stay the same, as usually the tunes are relocated in step of $100 bytes. However, the new study under patter searching we are applying is to be more accurate into relative offset by using the actual Program Counter register for determining the real address. But this is all being tested, so we can eventually see it in the future.

Conclusion

What we can say about this database?

It has a wonderful potential, but unfortunately too much engines are recognized with only 4 IDs (like in the above example), as the pattern derives from the AMS database. These can produce many false detections if you use a one by one step in searching.

However don't worry, we are working in made the database more reliable extending his syntax (for example for determining relative address in instructions) and by making some automatic tools that can suggest an usable pattern.

One of the most important point is that the Simon White scanner being developed is able to scan all the HVSC for 450 engines in less than 5 seconds!

Expect more information about engines as soon as the new database will be ready.

Finally, you can look at http://www.unreal64.net for the Lada player that is actually the unique one that take use of the database.

If you want to see the latest database for contributing in add new engines or fixes already present engines email Ray for having it (the database is released under GPL license for allowing contribution from everyone).

High Voltage Music Engines Collection

by Stefano Tognon <ice00@libero.it>

HVMEC is a new project I started after going into engines searching task. The name I choose is very similar to HVSC (High Voltage Sid Collection), but the porpoise is very different.

In HVMEC possibly all music engines making tools are collected, so one people can easy search for a particular one. Else, many credits information are given, so this can be a good place for historical engines conservation.

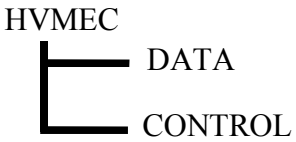
Is this so useful? Well, probably the best place where collect these tools is by adding entries in CSDb database. However I think that the possibility of searching for a tools in off-line mode is more evaluable, and it should be more complete if more related stuff (like sources, documentation, ...) are collected too.

So, this could be a good reason for starting this project and else in some discussion board, this idea was even proposed some times ago.

The main reason is however that I always like to know how a sid tune is made and knowing the used sid engines can be a good street to achieve that.

HVMEC Structure

The HVMEC is composed by two main directory:



DATA and CONTROL have then the same sub organization, but they contain different stuff:

- DATA: contains all binary, documentations, sources, examples of one music engine.
- CONTROL: contains HTML pages that describe the particular engine (we see all this later).

This division is a precise choice: as you can imagine, DATA is subject to reach many megabyte of space, while CONTROL will remain very little.

So, the off-line version of the collection is available always in two package [1]:

1. HVMEC-x.x-DATA.zip.gz
2. HVMEC-x.x-CONTROL.zip.gz

One people can so download only the CONTROL package to see all the collected engines and eventually download the DATA package for having all the engines, or only download a particular engine by follow the link in the on-line version of the collection.

The x.x is the version of the collection like 0.1, 0.2.

1 The package will be more because I will add a maximum 1MB for a downloaded file. In this case you will see more file called DATA and CONTROL

Editor vs Tracker

Each DATA and CONTROL directory are divided like this:

Why this division?
It is a my choice for try to divide that engines into two main category:

1. Editor: a program where note duration is explicitly declared
2. Tracker: a program where note duration is not explicitly declared

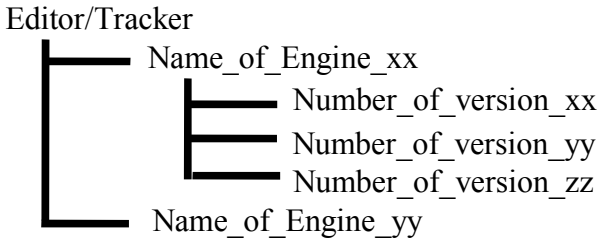
So the type 1 category is where you have some instruction to declare the duration of the followed notes like DUR 05 in the pattern, when in the tracker the duration is given by the number of events between two notes.

This table should show what I mean with an example of 3 notes with different duration:

Editor	*Tracker*
DUR 03 A4 B4 DUR 02 G4	A4 --- --- B4 --- --- G4 ---

Engines

Each *Editor* and *Tracker* directory are now with the same structure:



There are so the names of the engines like Advanced_Music_Programmer, SIDwinder, ... and inside them, the number of version of the editor, like *1.00*, *1.10*, *v1*, *v2*, *A*, *B*, ...

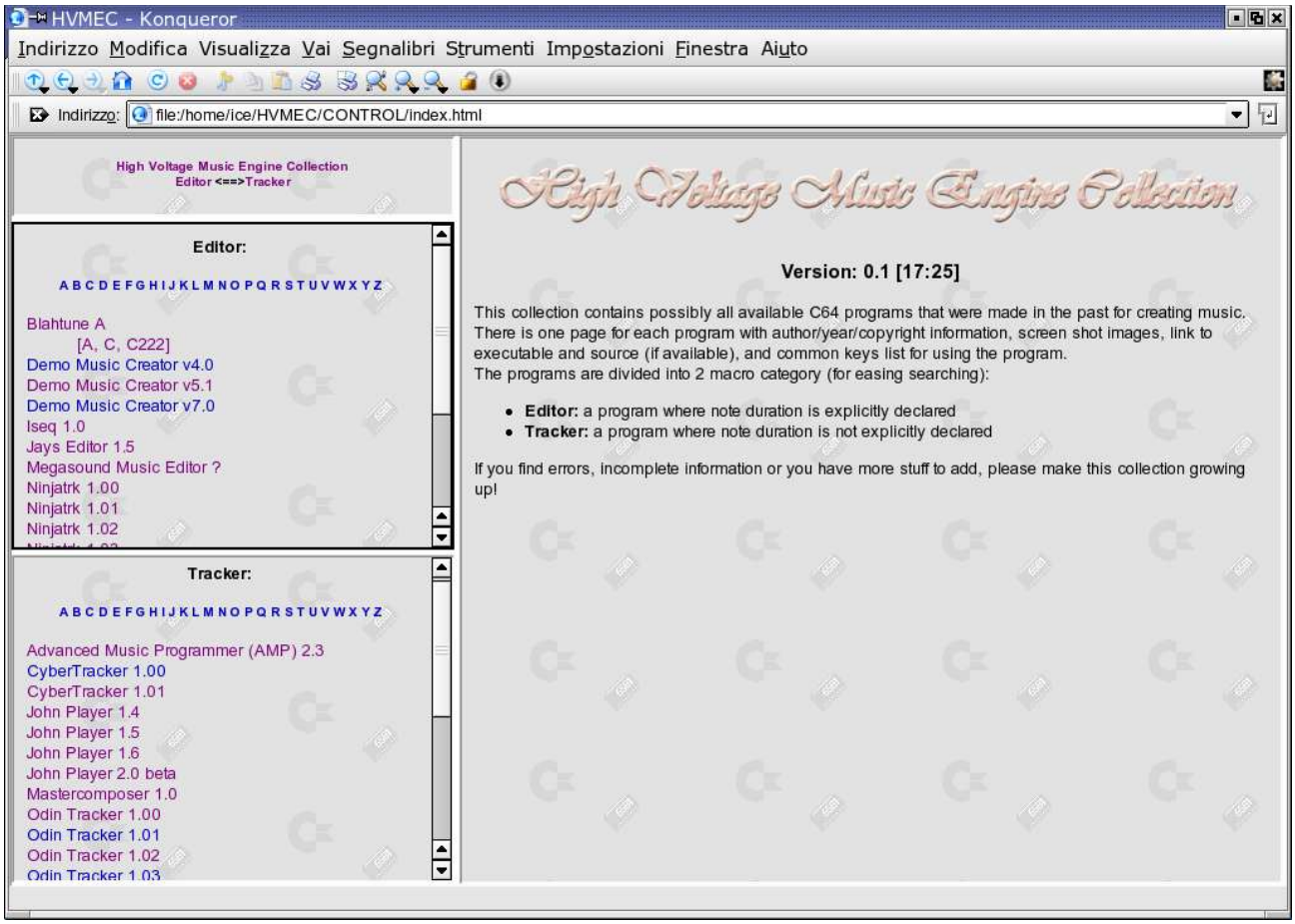
Sometimes other numbers like *[1x]*, *[2x]*, *[4x]*, ... are added to the version if the editor was provid-

ed for different tunes speed.

Finally, inside the version directory there are the programs, data, documentations, examples of the editor into the DATA base directory, and simple html pages and images into the CONTROL base directory.

Surfing the HVMEC

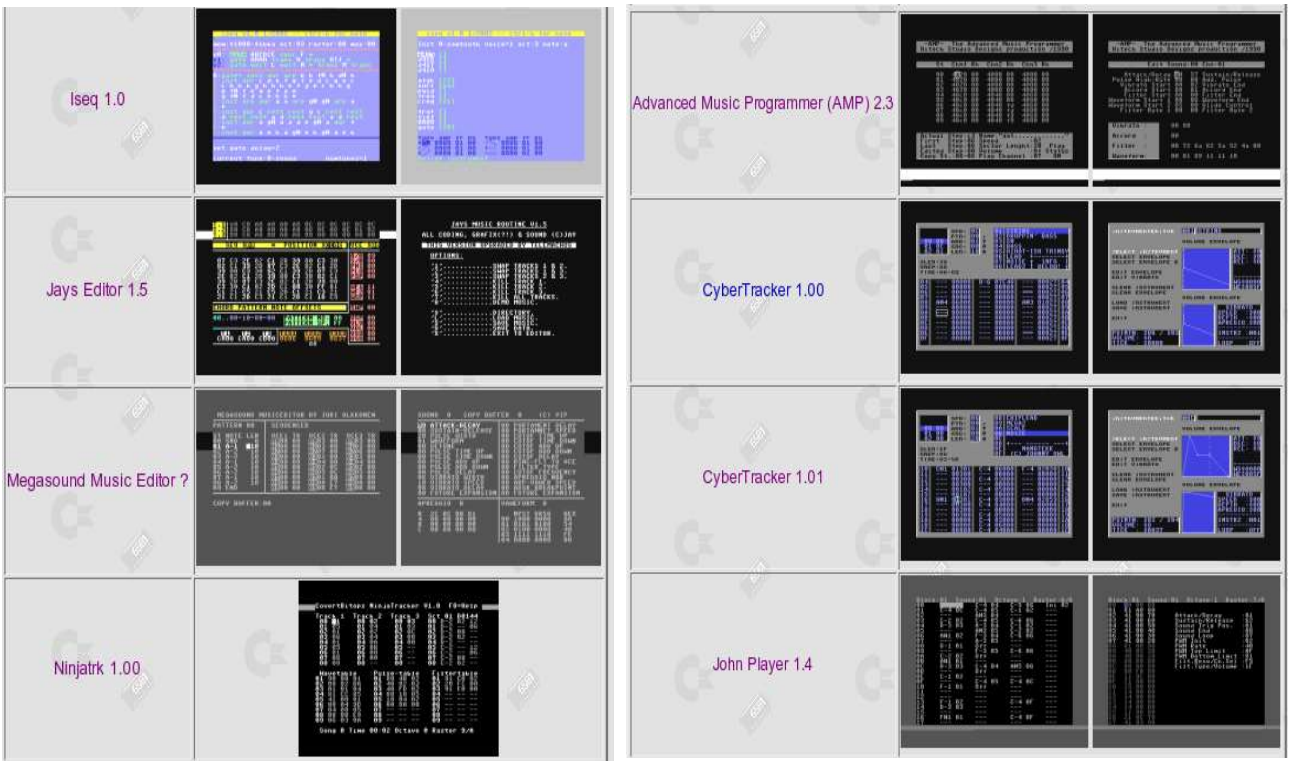
If you click to the *index.html* file into the CONTROL directory, you will see the HTML version of the collection. The layout is based onto frames:



- The top-left frame contains some links:
  - *High Voltage Music Engines Collection*: point the browser to the main page with the brief description of the collection.
  - *Editor*: point the browser to the complete list of Editor with some mini images of them
  - *Tracker*: point the browser to the complete list of Tracker with some mini images of them
- The center-left frame: contains the alphabetic list of editor engines link: clicking in one you will see the description page of that editor.
- The down-left frame: contains the alphabetic list of tracker engines link: clicking in one you will see the description page of that tracker.
- The main right frame: contains the page that a link in the previous frames point to.

For example, here you can see what happens where you press the Editor/Tracker into the upper-

left frame:



Players

HVMEC handles even the different player routines an editor can use. For examples you know that JCH editor can use different player routines. In this cases, in HVMEC there is a directory called [] where there are the version numbers of an editor/tracker. Inside it there are all the versions of the player routines in the DATA directory, while in CONTROL there is a simple HTML page that contains the description of each routines, like in this example:

Tunesmith Players

Version	*Year*	*Image*	*Source*	*For Editor*	*Description*
A	1996	C64 prg image	C64 source	Blahtune A Tunesmith B	Base player: efficient, but not to use with raster routine as has some problems when process not notes data instructions
C	1997	C64 prg image	C64 source	Blahtune A Tunesmith B	Look ahead for not notes data instructions at each tick for removing the raster problem
C222	1997	C64 prg image	C64 source	Blahtune A Tunesmith B	Look ahead for not notes data instructions more that one times for each ticks for removing the raster problem
D	1998	C64 prg image	C64 source	Tunesmith B	Like C222, but implements more new instructions

Location

I like to spend some words about where you can found the HVMEC.

I thinks that the best mode is that you bookmark this link:
http://digilander.iol.it/ice00/tsid/hvmec.html

because here you will find all the links to the on-line and off-line version of the collection.

In fact, as the collection will grown to many megabyte, I have found some free alternative web-space onto where place the material, and they are subject to change as soon as more space will be needed.

The other things is that usually the free web-space did not allow to put executable program into ZIP files, probably to avoid illegal sharing of copyrighted material, so big zip stored into the host will make suspicious the provider and there is a high probability that the account will be disable!

All the C64 executable that are into the collection are taken by surfing the web and I hope that they are provided by the authors for free download. However, if you find that a particular file in HVMEC cannot be freely downloaded, please let me know for removing it from the collection.

Finally, if you have the challenge of having free web space for mirroring or hosting the collection, your help is welcome.

Next versions

Next versions of HVMEC will be released when many new engines will be added and/or many credits and errors will be fixed, or maybe before an harddisk crash may destruct the already done work!

If you want to know what work is already done, a special page is present in the download page, so you can figure what is missed and what will be in the next version.

Else I think to include a new “sample” category for let an easy search for engines that can be used even for making sample based soun.

Conclusion

If you like this new collection, there are many task you can do for helping:

- Send binary/sources/documentation of tools you have
- Correct/Improve credits about the already present engines
- Create HTML related stuff of not yet present tools

Otherwise I hope that by looking to the collection you can found the tool you need for starting making sid music into your C64, or that you can use the players for founding the right pattern for the pattern searching engine project.

Sin 5 end