

HANDY RELEASE 0.9

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This document describes the V 0.9 release of the Handy development environment. It includes these sections:

- MUTE the Music
- Other 6502: Changes
- HandyAsm 1.08
- What You Must Do To Start Using This Release

MUTE the Music

If you would like to mute the playing of music without pausing the song, define MUTE_USER and then use the new MUTE music macro.

The MUTE macro acts as a toggle. You can detect whether music is currently muted by examining the Mute_flag field. If the field is non-zero, the music is currently muted.

The INITHMUSIC call causes music to become non-muted.

Other 6502: Changes

The GETSWITCH and GETJOY macros no longer perform the AUTO_TIMEOUT reset functions. This logic has been moved to the TIMEOUT macro defined in display.src. Also, the SWITCHES-reading logic has been corrected to test explicitly for the PAUSE_SWITCH bit.

The old cart.src didn't get distributed just before CES. Now it's distributed. An invalid LDA IODAT now reads LDA IODAT_RAM.

The auto-timeout constant is adjusted to cause timeout to happen in 1 hour rather than 1.5 hours (when external power is present).

END_ZPAGE macro now warns you if your allocations go out of zero-page.

HandyAsm 1.08 Macros

Macros now can refer to their arguments by value as well as by name. The format for reference to argument by value is ?%FN where %F stands for a format argument (%d equals decimal, %x for hexadecimal, %c for character); the N stands for the usual macro argument number.

For example, consider the new macro ECHO_VALUE (defined in sys.mac):

```
#MACRO ECHO_VALUE
    .ECHO "Value of ?0 is ?%d0 ($?%x0)
#ENDMACRO
```

The following invocation:

```
.ORG $1234  
Start  
    ECHO_VALUE Start
```

would result in the following echo:

Value of Start is 4660 (\$1234)

This has a known bug: you can't use "" as an argument to pass the current address. For now, to pass the current address you need to assign a temporary value:

```
current_addr .= *  
ECHO_VALUE current_addr
```

Other HandyAsm 1.08 Features

Assembler is a bit faster.

When the +E argument has been specified to have equates included in the symbol file, the assembler now automatically defines the constant ASM.EQUSYMS.

Error reporting is improved.

When defining ASCII characters as immediate arguments (eg LDA #'a), you can now use either single or double quotes to delimit the character. Single quotes work as always. Double quotes allow you to define the character using its current .CSET value. This will be useful to HPRINT users.

Multiple symbols can be checked with #IFDEF and #IFNDEF by using the AND and/or OR operators. What used to take:

```
temp_value .= 0  
    #IFDEF SYMBOL_1  
temp_value .= 1  
    #ENDIF  
    #IFDEF SYMBOL_2  
temp_value .= 1  
    #ENDIF  
    #IF temp_value = 1  
        ; Do stuff  
    #ENDIF
```

now takes:

```
#IFDEF SYMBOL_1 | SYMBOL_2  
    ; Do stuff  
#ENDIF
```

The old way of doing listings is restored. To get the new kind of listing, which requires the presence of an accurate .bin file, you must use the +C (for Complete listing) command-line argument.

The final listing solution, which will do the job everyone wants it to do, is still pending.

Flat .TF symbol references are now allowed. Any .TF segment can refer to another .TF segment's symbols.

Note that the current listing generated with +c will generate bogus addresses when referencing external .TF symbols. It'll be fixed real soon now, honest, would we lie?

What You Must Do To Start Using This Release

You must ask me to install it on your system. After the installation, the old 6502: directory will be renamed to SYS:6502.0.8 and the old 1.04 release of the assembler will be renamed to asm.old.

Incomplete object and assembly statements add a Y suffix to address numbers for better readability.

With or without the parameter, any of the listed library files are required. If you choose not to include them, you will need to recompile them. Otherwise, you can just copy them over. The linker is set up to recognize them as relocatable code which is of course a good idea. If you do not want to do this, then you will have to link them in manually.

Objects of the new listed procedures (.TF) are pre-linked. This is to prevent you from having to link them in manually. If you do, then you will have to link them in before you can use them.

As always, the memory map is the same as the previous version. The memory map is located in the file `memmap.asm`.

The assembly language is compatible with the Handy Release 0.8 assembly language.