Asm-Pro

COLLABORATORS

	TITLE : Asm-Pro	

ACTION	*NAME*	*DATE*	*SIGNATURE*
WRITTEN BY		April 12, 2022	

REVISION HISTORY

NUMBER	DATE	DESCRIPTION	NAME

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Asm-Pro

1.1 Asm-Pro By Genetic

Asm-Pro V1.13 - Coded by Genetic in 1998

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Commandline All commandmode options.

history file Detailed list of changed and fixed stuff.

Thanks The people that need to be thanked :).

Disclaimer The disclamer.

1.2 About Asm-Pro.

About Asm-Pro

Asm-Pro is a MC680x0 marco assembler with integrated editor, debugger, linker and monitor for our Amiga. With this program you have all the tools you need for the development of new software in assembly. It has full mc680x0, FPU and MMU support (and ppc support will be added when i get my ppc board).

This is version 1.13 the most ugent bugs from v1.11/12 have been fixed but still a lot has to be done.. Work will continue slowly but surely...

Feel free to tell me what you think of it and report me any bugs you might find. But first check the known bugs section in the history file and check my homepage for a newer version of Asm-Pro and/or the Historyfile.

Check out the story for more background info.

Solo/GnT

Credz:

All coding of Asm-Pro by Solo / Genetic

Asm-Pro Guide by Feanor / Genetic

1.3 Asm-Pro - The story.

Asm-Pro, the story...

Asm-Pro was inspired by the great Asm-One by TFA (v1.28). I started this project after I used trashm'one (with it's nice inciff) for a while but it doesn't undestand 68020+ code and Asm-One does but had no inciff. So I desided to combine the two and also make it more system friendly.

There are a lot of changes and improvements over asm-one v1.28. The biggest change is that I wrote the entire editor and all other character output stuff 2 be system friendly so it also works on your favourite gfx-board. For a list of new features and updates see the major changes and for a more detailed description I suggest you read the history file.

Major Changes:

- Editor and other text output is system friendly now and works great on your favourite gfx-card.

- Redisign of the Asm-Pro look.

- Included a font requester and made the editor font sensitive.

- New gui for starting up Asm-Pro, workspace mem type and size can be saved with wp (write prefs).

- Multiple source file extentions (try "(.s|.asm|.i)" as source extention to get all sources and includes in the file requester.)

- Debug registers have there own window.

- Stack size can be changed from shell or icon so even very big sources don't crash you system.

- Added the new mc68060 commands.

- Changed blok insert from Amiga-i to Amiga-v (amiga-i will still work though).

- Included my own IncIFFp routines, so it works now.

- Syntax coloring added (comments only for now).

- Added %getdate and %gettime it returns system time and date in ascii.

- Set mark keys should now also work with other keymaps (like swedish

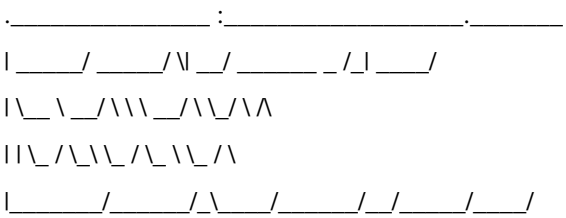
or german) So pressing Amiga+Shift+2 will set Mark 2 etc. same goes

for delete conditions in debugmode.

Mapped AGA guide from Amiga-= to HELP-key so it won't get in the way.

- System friendly and custom scroll routine (for speed).

1.4 Contact Addresses



Contact Adresses

Asm-Pro Homepage : http://surf.to/asmpro

E-Mail

Solo/Gnt : sologntworldonline.nl

Feanor/Gnt : aramakerconcord-eracom.nl

Surf to Genetic Homepage : http://surf.to/genetic

1.5 Requirements...

Requirements

Asm-Pro V1.13 needs the following configuration of hardware and software to be present:

· Any Amiga equipped with an MC680x0

· Kickstart version V2.04 or above

· ReqTools.Library

· MathTrans.Library

1.6 Installation

Installation

- Create an Asm-Pro directory on your favourite drive and copy all files/dirs from the archive to this directory.

- Optional you can assign "Asmpro:" to this directory so the Asm-Pro.guide and the Regsdata file can be found.

I am sure you've got the system include files so they are not included. If you don't you should get the Amiga developer CD.

I suggest you put the include files in AsmPro:Include/

1.7 Programmer notes

Programmer notes

68040/060 emulation Some notes about software emulated instructions.

Debugger and 060 Debug window in 060 mode.

1.8 Programmer notes m68040/060

Programmer notes m68040/060

Instructions hardware supported by the 040 that need to be emulated on the m68060 and could slow down execution when used:

- CMP2

- CHK2

- CAS2

- DIVU.L

- DIVS.L

- MULU.L

- MULS.L

- FBDcc

- FScc

- MOVEP (no support on 060)

- all the m68881/2 specific fp instructions

- and some more less commont instructions

Instructions that are hardware supported by the m68060 but are emulated on the m68040:

- FINT

- FINTRZ

- FTRAPcc

For more detailed info check out the m68060 user's manual.

1.9 Commandline.

Asm-Pro Command summary

The command line is the command centre of Asm-Pro,

recognized by the prompt :

>

Next are the commando's which can be used.

Project

ZS - Delete source text

O - Restore deletions of source text

R - Load source code

RB - Load Binair data

RO - Load Object module

W - Save source text

WB - Save Binaire data

WO - Save Object module

WL - Save Linkfile

I - Insert

U - Update file

ZF - Remove file

WP - Save Preferences

=M - Enlarge working memory

!/!! - Quit Asm-Pro

=C - Change colors

Editor

T[line] - Start of source (or line n)

B - End of source

L[Text] - Text search

ZL[line] - Delete line from cursor position

P [line] - Print lines from cursor position

EL - Expand Lables with....

Memory

M[.amount][address] - Memory edit

d[address] - Dissasemble

H[.amount][address] - View memory, hexadecimal

N[address] - View memory, ASCII text

S[.amount] - Search

F[.amount] - Fill

C[.amount] - Copy

Q - Compare

Insert

ID - Insert Disassembled code

IH[.amount] - Insert Hexadecimal code

IN - Insert ASCII code

IB - Insert Binary code

IS - Insert Sinus

Assembler

A - Assemble in Editor

AO - Assemble with Optimalisation

AD - Assemble with debug infromation

=S - View Symbol table

Monitor

J[address] - Jump to subroutine (JSR)

G[address] - Jump inmediately (JMP)

K[step] - One step modus

X[register] - View and/or change register

ZB - Remove Breakpoints

Diskette

RS[drive] - Read Sector

RT[drive] - Read Track

WS[drive] - Write Sector

WT[drive] - Write Track

CC[drive] - Calculate Bootblock-Checksum

W - Load External data

Miscelaneous

CS - Create Sinus in memory

Y [command] - Execute Dos command

V [path] - Show contents of path

> - Revert output to PRT: or Dfx:

?[expression] - Calculate number expression

return - Empties screen

=R - Custom chip information

PS - Parameter Set

1.10 Project

PROJECT

ZS - Zap Source

Deletes the program text, the copybuffer (clipboard) and the code.

The program text can be undeleted with the "o" (old source) command but

only if there is no new source text entered in the editor window.

O - Old Source

With this command you can retrieve the source text after a zs command.

R - Read

Reads a source text into the editor. Asm-Pro asumes it is a ASCII text.

If you want to alter the normal .s extension change "PROJECT/PREFERENCES/SOURCES.S".

RB - Read Binary

This command will load binary data into a memory address.

After the file name the start and end address will be asked.

BEG>

END>

BEG (Begin) is the first address that will be filled with data, END (End) the last.

BEG>$70000

END>$71000

Loads the first $1000(=4096 bytes) from a binary file into the memory, starting

at address $70000. To load the complete file leave the END> empty.

Example :

BEG>$70000

END>

RO - Read Object

Reads an executable into memory. It is sometimes possible

to execute it.

Some programms require input from the CLI. To get this right you must

fill in the registers A(pointer to parameters) and D (Length) yourself or

use the PS command.

When loading an empty executable (" ") all memory is cleared.

W - Write

Writes the source code to a file. The file is a normal ASCII file so editing with

other text editors is also possible.

Usual the .S extension will be placed behind the name. If you want a different extension

switch of the "PROJECT/PREFERENCES/SOURCE.S". Now you can choose your

own extension with the !.[extension] commando. Example:

>!.asm

WB - Write binary

Writes a binary file to disk. You have to give the begin and end address.

Example:

BEG>$70000

END>$71000

Saves $1000(=4096 bytes) from address $70000 as a binairy file.

WO - Write Object

After assembling it is possible with the WO command to write the object/executable to disk.

Use WL to write a Linkfile.

I - Insert

With this command it is possible to insert a text file into the excisting

source text.

U - Update File

Writes the source text to disk, updating the file. Same as W (write).

ZF - Zap File

Deletes a file from disk.

Zi - Zap Include memory

Deletes include files from memory. The include files are kept in memory

to speed up the assembling proces.

Wp - Write Preferences

Creates or updates the Asm-Pro.Pref file.

=M - Expand Memory

This command makes it possible to expand the working memory

(as long as there is memory available) whithout losing anything.

! - Quit Assembler

Quits Asm-Pro. No changes are saved and memory is erased.

!! - Quit Assembler Fast

Same as Quit Assembler but no requesters are shown and nothing is saved.

=C - Change Colors

To overide the standard preferences colors you can use this command.

A window will appear making it possible to adjust the colors.

1.11 Editor

EDITOR

T- / Top of file

Jumps to the line number specified, otherwise jumps to the start of the source.

>T100 : Jumps to line 100

>T : Jumps to the start of the source

>t-1 : Jumps to the end of the source

L- Locate text

Searches for the string specified.

>Lmove : Searches for all move operands in the source.

To search again simply type : >L

NOTE : Between the L commando and the string cannot be a space.

ZL- Zap Lines

Deletes all lines from actual cursor position.

>ZL100 : deletes 100 lines from actual cursor position.

>ZL-1 : deletes all lines from actual cursor position.

P- Print Lines

Prints from cursor position the amount of lines specified.

To print the lines select "Project/Preferences/Printerdump" or press

Ctrl-P.

>P100 : Prints 100 lines from cursor position

>P-1 : Prints all lines from cursor position

EL- Extend Lables

If more than one programmer is working on the same source, there is a change

that lable names are used more than once. To avoid this the EL commando

is usefull

Asm-Pro will ask with what you want to extend the lables:

Extend Lables with>

1.12 Memory

MEMORY

M- Memory Edit

Gives direct edit possibility in memory. You can enter text or hexadecimal values.

D,@D- DisAssemble

Goes to the assemble modus, the memory is disassembled. You can scroll, jump and

edit. To undo changes press Escape (see 5.6 and 9)

With @D you only get 12 lines on your screen, so half-screen.

H,@H- HexDump

Goes to the hexdump modus. Again you can scroll, jump and

edit. If you want to edit longwords the H.L commando is more interesting.

With this you can edit complete longwords instead of just bytes. (see 5.6 and 9)

With @H you only get 12 lines on your screen, so half-screen.

N@N - AsciiDump

Goes to the ASCII modus. Again you can scroll, jump and edit. The view

is in rows of 64 letters and again you only get 12 lines on your screen, so half-screen.
@A - Assemble mem
Assembles directly into memory.
@B - BinaryDump
Displayed is a view with 8 lines of binary data.
S - Search in memory
Example:
>S
Beg>$10000
END>$20000
After entering the start and end address you can enter the data you want to search
DATA>123 /or 4321.I /or "hello" /or $4532.w /or %101001.b
Default search size is byte.
F - Fill Memory
Be carefull with this commando. If you fill the wrong part of the memory
you can crash the program or even your computer.
C- Copy Memory
Copies a part of the memory to an other part of the memory.
Q- Compare Memory
Compares two parts of the memory. When not equal the address of the first not
equal byte is returned.

1.13 Insert

INSERT
ID - Insert DisAssemble
This is a very powerful commando. It gives you the ability to disassemble
memory and place it directly into the source code.
The new code will be supplied with lables (if possible), so it is ready for use.
The one disadvantage is that the commando is rather slow. For the real
disassemble work you can better use Resource or some other proper program.
IH - Insert Hexdump
Gives you the possibility to add hexadecimale text into your source code.
IN- Insert ASCII
Gives you the possibility to add text as DC.B strings into your source code.
It wil automatically use hexadecimales if not defined as ASCII.
IB - Insert Binary
Gives you the possibility to add binary as DC.B into your source code.
IS - Insert Sinus
Gives you the possibility to add a Sinus into your source code.
See "Rest : CS"

1.14 Assembler

ASSEMBLER

A- Assemble

This will start the assembling, same as Amiga-Shift-A.

@A - Assemble to memory

See paragraph 5.2 "memory"

AO - Assemble optimized

Normally assembles the source but will try to optimize the branch distance to
the shorter .S version. When the branch is more than -128 or +128 away,
the branch is changed into a .W version.

AD - Assemble debug

Assembles the source and then jumps to the debugger.

=S - Symbol table print

Shows all global variables after assembling. These variables can also
be printed, set "PROJECT/PREFERENCES/PRINTER DUMP" and select Listfile.

1.15 Monitor

MONITOR

J- Jump to address

Jumps to the specified address like a subroutine (JSR).
When no address is specified the jump will be to the start of the source.
Example :
>JStart
Jumps to the label "Start".

G- Go to address

Same as the J commando with the addition that it is possible to set a
breakpoint or stop at an illegal commando.

K- Single step, n steps

Steps for n steps through the source from actual program counter.
See Debugger for more information.

X- Change - edit registers

Can be used in two ways:
>X : view all registers
>XD2 : view one register (expl D2)
Just typing X will show all registers, including USP, SSP, SR and PC.
Flags of the statusregister will be shown as characters.
All changes in the registers since last view will be shown invers colored.

1.16 Diskette

DISKETTE

RS - Read Sector

Read sectors from a disk. An Amiga disk has 80 tracks on each side which are
seperated into 11 sectors. This makes 80*2*11 = 1760 sectors, each sector is
512 bytes large. The bootblock consist of 2 sectors, starting at sector 0.
The naame of the disk is in the rootblock which can be found on track 80.
Example :
To read the bootblock of DF1: into address $70000
>RS1 : diskdrive 1
RAM PTR>$70000 : Pointer to RAM-address
DISK PTR>0 : Sector number
LENGTH>2 : Amount of sectors to read

RT - Read Track

See RS

WS - Write Sector

See RS

WT - Write Track

See RS

CC- Calculate checksum

The first thing loaded by the system is the bootblock.
With this information it determinse what kind of disk it is, KICK=Kickstart,
DOS=dos, BAD=unknow format.
The bootblock can also contain a executable. To check if the data is usable,
the systems checks the chekcksum. With CC this checksum can be recalculated.
This can be useful when programming your own bootblock or in case of a virus.
Example:
>CC1
Will calculate the checksum on the bootblock in DF1:
When a RS1 or RT1 commando is issued, the checksum will automatic
be calculated.

E - Extern files load

Data which is pointed at whith the external directieve, will be loaded
when the E commando is given. Specify a numner if you do not want to
load all external data. For more information see Chapter 7.

1.17 Miscelaneous

MISCELANEOUS
CS- Create sinus in memory
This commando creates a Sinus.
Example :
DEST> : Place in memory where sinus must be placed
BEG> : Starting Angle
END> : Ending Angle
AMOUNT> : number of entries in sinus table
AMPLITUDE> : Highest/Lowest value of the sinus
YOFFSET> : The middle of the sinus
SIZE> : B(ytes)/ W(ords) / L(ongwords)
MULTIPLIER> : Afterwards number multiplier
HCORRECTION> : Halve step correction
RCORRECTIE> : ROUND in stead of INT (0,7=1 in stead of 0)
Y - Execute dos commando
With this commando you can start a Dos program while working in Asm-Pro
Example :
>Ydiskmaster
V - view directory
Shows the contents of the path specified. Necessary when the Req.Library
is shut down.
Example
>VDF0:
Shows the contents of DF0:
Free space is in bytes.
> - Specify output
Reverts the output of a program to disk or printer. If the output is to
disk the file will get the .TXT extension. To stop the output repeat the
commando without a path.
? - Calculate value
Usage of all operators and defined lables is possible. The result is
shown in hexadecimal, decimal, ASCII and binary.
R - register information
Has the following options :
>=R<002> value search with address and register.
>=R DMACONR name, search with the original name.
>=R gives a list of all registers
PS - Parameter Set
Sets the parameters used in programs which have a CLI input.
Asm-Pro calculates the length and puts it into the correct register

1.18 Special features.

Special features.

IncIFF(p)

%Getdate/%Gettime

PCR in Debug window

Don't know where to place this info so here it is:

I also implemented a custom scroll routine (using the cpu) to speed up scrolling in the editor. This is only usefull when you don't have a gfx-card as it is NOT system friendly..

The custom scroll routine ONLY works if you have a screen that is 640 wide.

It works great on a MULTISCAN:Productivity screen and scrolling is almost two times faster (on my 040) than with system routines.

This option can be activated in the Env Prefs window ("Custom Scrollr.").

1.19 Special features - PCR in Debug window.

Special features - PCR in Debug window.

When you have a mc68060 the register window in the debugger will show the Processor Configuration Register (PCR).

The PCR is an 32-bit register which controls the operation of the mc68060 internal pipelines and contains a software readable revision number.

Bits 31-16 Identification:

These bits are configured with the value which id's this device as an mc68060. These bits are ignored when writing to the PCR.

Bits 15-8 Revision Number:

Contains the 8-bit device revision number. The first revision is 00000000. these bits are ignored when writing to the PCR.

Bit 7 (EDEBUG) Enable debug features:

When this bit is set, the mc68060 outputs internal control infoirmation on the address bus and data busduring idle bus cycles. This bit is cleared at reset.

Bits 6-2 Reserved.

Bit 1 (DFP) Disable Floating-Point Unit:

When this bit is set the on-chip FPU is disabled and any attempt to execute a floatingpoint instruction generates a line F emulation. This bit is cleared at reset.

Bit 0 (ESS) Enable Superscalar Dispatch:

When this bit is set, the ability of the mc68060 to execute multiple instructions per machine cycle is enabled. This bit is cleared at reset.

For more info see the M68060 Microprocessors User's Manual from motorola.

1.20 Special features - %Getdate/%Gettime.

Special features - %Getdate/%Gettime.

Implemented %getdate and %gettime these commands will generate the

current date or timestring. this is usefull for a version string or about

window.

%getdate [dateformat]

%gettime

[dateformat] is optional and, when not specified, will default to the dos dateformat (FORMAT_DOS).

Dateformat accepts all dateformats as listed in dos/datetime.i and shown here:

FORMAT_DOS equ 0 ; dd-mmm-yy

FORMAT_INT equ 1 ; yy-mm-dd

FORMAT_USA equ 2 ; mm-dd-yy

FORMAT_CDN equ 3 ; <see below>

FORMAT_MAX equ FORMAT_CDN

There is one exception and that is to the include and that is the FORMAT_CDN (or 3).

If you use FORMAT_CDN it wil produce a datestring like "dd.mm.yy" and this is very

usefull for version strings: $VER <name> <version>.<revision> (dd.mm.yy)

It works like this:

versionstring:

dc.b "$VER: Asm-Pro v1.11a ("

%getdate FORMAT_CDN

dc.b ") By Solo/Genetic.",0

This will generate the following version string:

dc.b "$VER: Asm-Pro V1.11a (03.06.98) By Solo/Genetic.",0

OR:

About:

dc.b 'Assemble date: '

%getdate

dc.b 0

Will produce a string like this:

dc.b "Assemble date: 03-Jun-98",0

Same goes for %gettime (ex. "21:06:09").

1.21 Special features - IncIFF(p).

Special features - IncIFF(p).

==========

Example source IncIFF(p).

- INCIFF

Include iff picture as raw-blit or raw normal data with or without colormap

Syntax:

Picture: INCIFF {filename}[,conversion mode[,Cmap placing[,Cmap mode]]]

{filename} = The name of the IFF ILBM file to include.

{conversion mode} = "RN" or "RB" for RAW-NORMAL or RAW-BLIT format

{Cmap placing} = "A","B","N" for Cmap After,Before or None

{Cmap mode} = "ECS","AGA" for word or longword Cmap.

If no options are given Asm-Pro will convert to defaults : RAW-BLIT

No Cmap

Word Cmap

The Cmap in ECS mode will be decoded to WORDS.

The Cmap in AGA mode will be decoded to LONGWORDS.

ECS Cmap Example:

```
DC.W $0000,$0F00,$00F0,$000F ; COLOR00 - COLOR03
```

AGA Cmap Example:

```
DC.W $0000,$0000 ; COLOR00 High-RGB,Low-RGB
DC.W $0F00,$0F00 ; COLOR01 High-RGB,Low-RGB
DC.W $00F0,$00F0 ; COLOR02 High-RGB,Low-RGB
DC.W $000F,$000F ; COLOR03 High-RGB,Low-RGB
```

==========

- INCIFFP ((copper)palet picture)

Include pallet from iff picture in your program.

Syntax:

CopperColor: INCIFFP {filename}[,Coppermode[,Bankoffset][,coloroffset]

colorlist: INCIFFP {filename}[,list type]

{filename} = The name of the IFF file containing the CMAP hunk.

{copper mode} = "CE" or "CA" for ECS or AGA copper list

Default is "CE"

{Bankoffset} = [0-7] offset for start bank. (CA only)

Default is "0"

{coloroffset} = [$180-$1be] color offset inside a bank

Default is "$180"

{list type} = "12" or "24" for 12 bits or 24 bits color list

Default is "12"

If no options are given Asm-Pro will convert to default : colorlist 12bit

colorlist:

```
a inciffp adventure/pics/hall.ehb
b inciffp adventure/pics/hall.ehb,12
c inciffp adventure/pics/hall.ehb,24
```

coppercolors:

```
d inciffp adventure/pics/hall.ehb,CE
e inciffp adventure/pics/hall.ehb,CE,$190
f inciffp adventure/pics/hall.ehb,CA
```

```
g inciffp adventure/pics/hall.ehb,CA,$180
h inciffp adventure/pics/hall.ehb,CA,2
i inciffp adventure/pics/hall.ehb,CA,2,$180
12BitsColorlist:
dc.w $0000
dc.w $0F00
dc.w $00F0
dc.w $000F
24BitsColorlist:
dc.l $00000000
dc.l $00FF0000
dc.l $0000FF00
dc.l $000000FF
ECScoppercolorlist:
dc.w $0180,$0000
dc.w $0182,$0f00
dc.w $0184,$00f0
dc.w $0186,$000f
AGAcoppercolorlist:
dc.w $0106,$0C40
dc.w $0180,$0000,$0182,$0EEE
dc.w $0184,$0100,$0186,$0110
dc.w $0188,$0111,$018A,$0220
dc.w $018C,$0221,$018E,$0320
dc.w $0106,$2C40
dc.w $0180,$0981,$0182,$0777
dc.w $0184,$0982,$0186,$0984
dc.w $0188,$0A91,$018A,$0995
dc.w $018C,$0996,$018E,$0A92
```

1.22 Thanks

Thanks to

Special thanks go to the Beta testers for their constructive comments, bug reports and ideas.

- One/Genetic MC68060/50 MPC604/200 64MB CyberVision 64
- Tib/TFA MC68030/50 8MB
- P-O Yliniemi MC68060/50 MPC604/200 134MB CyberVision 64
- Thomas Wittwer MC68030/50/fpu 32MB
- Peter'ViTAL'Eriksson MC68060/50 36MB CyberVision 64

- Scorpion/Silicon MC68030/50 8MB

- Cliff Earl MC68000

And ofcoz to all people sending me emails after Asm-Pro's public release telling me they love it :).. Please continue to do so your opinion meens a lot to me...

List of people that sent me bugreports:

Cliff Earl

Scorpion/Silicon

Emiliano Esposito

Erik Nordby

Jouni Korhonen

kERNAl/FAITH/LFC

Mariusz Zielinski

Michael Knoke/Aliendesign

P-O Yliniemi

Peter Eriksson (ViTAl/MKS)

Matteo Pedone

Rune Brekke Stenslan (Spˆ Ctz)

Boushh/TFA

Thomas Wittwer

Joop de Jong

Maurice Maissan

Sven Thoennissen

Morgan Johansson

And some more but I lost a lot of emails.. send me another bugreport and you'll get in the list :)

1.23 Disclaimer...

Disclaimer

No guarantee of any kind is given that Asm-Pro is 100% reliable. You are using it at your own risk. The author takes no responsibility for any damage which is caused by using this program.

1.24 ....

Leeg.