

68040

COLLABORATORS

	<i>TITLE :</i> 68040		
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
WRITTEN BY		August 9, 2024	

REVISION HISTORY

NUMBER	DATE	DESCRIPTION	NAME

Contents

1	68040	1
1.1	68040.doc	1
1.2	68040.library/--Background--	1
1.3	68040.library/FPUControl	1

Chapter 1

68040

1.1 68040.doc

```
--Background--  
FPUControl()
```

1.2 68040.library/--Background--

PURPOSE

This is the support library for 68040 based Amigas. Its purposes are manifold:

- Fixes and workarounds for several programs that typically appear on 68040 based systems, mainly cache related.
- Replacement functions for exec.library CPU related functions.
- Loading and initialization of the FPSP68040 motorola software module for emulation of FPU instructions not natively supported by the 68040 internal FPU.
- Setup of the 68040 MMU and related functions of the exec library.

The last step is not done by the 68040.library directly but by the mmu.library which is loaded by the 68040.library on startup.

Furthermore, this library provides user-callable functions. However, even though they are documented, they shouldn't be called directly. The recommended calling mechanism is not by using this library directly, but by calling the same vector of the 680x0.library which does the same independent of the CPU installed in your system.

1.3 68040.library/FPUControl

NAME

FPUControl - control the generation of FPU exceptions

SYNOPSIS

```
oldflags = FPUControl ( flags , mask );
d0      d0      d1
```

```
ULONG FPUControl ( ULONG , ULONG );
```

FUNCTION

This function disables or enables various exceptions the 68040 FPU might generate. The purpose of this function is mainly to enable workarounds for badly written software.

INPUTS

flags - A ULONG bit mask of the exceptions to disable. A set bit disables the corresponding exception.
mask - A mask longword of the flags that are to be changed. A set bit indicates that the corresponding bit in flags mask is valid.

The following bits are currently defined:

FPUctrlB_BSUN	0L	Disable the branch or set on unordered exception.
FPUctrlB_INEX	1L	Disable the inexact result exception.
FPUctrlB_DIVZ	2L	Disable the divide by zero exception.
FPUctrlB_UNFL	3L	Disable the underflow exception.
FPUctrlB_OVFL	4L	Disable the overflow exception.
FPUctrlB_SNAN	5L	Disable the signalling NAN exception.
FPUctrlB_OPERR	6L	Disable the operand error.

RESULTS

the old settings of the exception mask.

NOTES

This function should not be called directly. It is called indirectly by the corresponding library function of the 680x0.library.

This function does not alter the FPU status at all, it does not even touch the FPU. All it does is that it sets certain control bits in the 68040 library base which are interpreted by the exception vectors installed by this library.

Therefore, this library vector does nothing if someone altered the FPU exception vectors manually.

BUGS

SEE ALSO

libraries/68040.h, libraries/680x0.h,
the Motorola 68040 manual.