1 Introduction

Have you never wondered if those Guru numbers ever made any sense ? And, suprise suprise, they do. I do admit, they are cryptic at first, but once you know the system, things get quite easy, and you can very well find out where what went wrong. But reading the newsgroups c.s.a.* people sometimes asked, what a certain guru number meant, so I finally decided to write a nice guru number guide. I must admit that the explanations are not too exact, but they can give you an idea, how the error was produced. This text does not claim to be the bible of guru numbers (although I did name it GuruBible) nor that it is complete.

2 Credits

- `mcp.gurudat`
  about 98 % of the gurunumbers were taken from that.
  Thanks go to Stefan Sommerfeld and Michael Knoke

- `LastAlertPatch`
  that is were the other 2 % came from

- `My own Guru document (on paper)`
  where the bootup colours were written down (but don't ask me where I got those, as the document is about 3-4 years old)

- `include/exec/alerts.i`
  where information was that well hidden and of no use

- `"You too can be an Amiga Guru" by Dave Boulton`
  Where a lot of background information was explained and some other things (like suberrode, gerneral error code)

- `Gaff`
  Whose extensive knowledge of EMACS and its Regular expression replace facility helped me a little.

- `Undernet Channel AmigaCafe`
  I don't really own credits to them concerning the GuruBible, but I wanted to just greet them from this point. You are cool guys.

3 Author

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If I made any mistakes, or I have left out some guru numbers, or you have more explicit error explanations for the numbers, feel free to email me with the information and I will try to include it in the next release.

4 System Error Messages

4.1 How the GuruNumber is constructed

The guru number is, what you might expect, not a randomly chosen one (thank christ) but quite to the contrary, very sophisticated.
for example: `8401000B` = not enough memory to open window

subsystem number	general error code	specific error code
84	01	000B

the first two digits are the subsystem number `84` = intuition.library
the 3rd and 4th digit is the general error code `01` = insufficient memory
and the other 4 represent the specific error code `000B` = open window (in this case)

Another thing is, that if you encounter an 8 or greater as first digit, you want to subtract 8 (remember that you are dealing with hex numbers) to get the correct guru number.

If you can not find a displayed guru number in this list, you can try tracking down the error with the help of the specific and general error codes.

4.1.1 Bootup colours

- normal:
  - dark grey $\Rightarrow$ Processor working
  - light grey $\Rightarrow$ ROM Checksum correct
  - white $\Rightarrow$ Enough Ram available (minimum 256kb)

- Error:
  - green $\Rightarrow$ Error in Chipram
  - yellow $\Rightarrow$ Processor Exeption
  - red $\Rightarrow$ Rom Checksum Incorrect
  - blue $\Rightarrow$ Custom Chip failure (but was never compiled in the KS)

- Keyboard LED: (capslock)
  - 1x $\Rightarrow$ Rom Chechsum failure
  - 2x $\Rightarrow$ Ram Error
  - 3x $\Rightarrow$ Failure of internal timer
  - 4x $\Rightarrow$ shortcut in the keyboardmatrix

(this is a bit weird, because it does sometimes blink for no reason)

4.1.2 Guru Numbers

Main error codes:

- Subsystem Error Codes

	Libraries		Devices
01	Exec	10	Audio
02	Graphics	11	Console
03	Layers	12	Gameport
04	Intuition	13	Keyboard
05	Math	14	Trackdisk
06	CList	15	Timer
07	Dos	20	Cia
08	RamLib	21	Disk
09	Icon	22	Misc
0A	Expansion	30	Bootstrap
0B	Diskfont	31	Workbench
33	Gadtools	32	DiskCopy
34	Utility	35	Unknown/Custom

- General Error Codes

01	NoMemory
02	MakeLib
03	OpenLib
04	OpenDev
05	OpenRes
06	IOError
07	NoSIgnal
08	BadParam
09	CloseLib
0A	CloseDev
0B	ProcCreate

4.1.3 Actual Guru Numbers

- Processor Exeptions (System)

00000002	Hardware bus fault / access error / timing error
00000003	Illegal address access
00000004	Illegal instruction
00000005	Divide by zero
00000006	Check instruction error
00000007	TRAPV instruction error
00000008	Privilege violation error
00000009	Trace error
0000000A	Line 1010 Emulator error
0000000B	Line 1111 Emulator error
0000000C	Reserved Vector
0000000D	CoProcessor Protocol error
0000000E	Stack frame format error
00000018	Spurious interrupt error
00000019	AutoVector Level 1 interrupt error
0000001A	AutoVector Level 2 interrupt error
0000001B	AutoVector Level 3 interrupt error
0000001C	AutoVector Level 4 interrupt error
0000001D	AutoVector Level 5 interrupt error
0000001E	AutoVector Level 6 interrupt error
0000001F	AutoVector Level 7 interrupt error
00000020	uninitilized TRAP #0 vector
00000021	uninitilized TRAP #1 vector
00000022	uninitilized TRAP #2 vector
00000023	uninitilized TRAP #3 vector
00000024	uninitilized TRAP #4 vector
00000025	uninitilized TRAP #5 vector
00000026	uninitilized TRAP #6 vector
00000027	uninitilized TRAP #7 vector
00000028	uninitilized TRAP #8 vector
00000029	uninitilized TRAP #9 vector
0000002A	uninitilized TRAP #A vector
0000002B	uninitilized TRAP #B vector
0000002C	uninitilized TRAP #C vector
0000002D	uninitilized TRAP #D vector
0000002E	uninitilized TRAP #E vector
0000002F	uninitilized TRAP #F vector
00000030	FPCP branch or set on unordered condition
00000031	FPCP inexact result
00000032	FPCP divide by zero

`00000033`	FPCP underflow
`00000034`	FPCP operand error
`00000035`	FPCP overflow
`00000036`	FPCP signalling NAN
`00000038`	MMU configuration error
`00000039`	68851 illegal operation
`0000003A`	68851 access level violation

- exec.library

`01000001`	68000 exception vector checksum (obs.)
`01000002`	Execbase checksum bad (obs.)
`01000003`	Library checksum failure
`01000004`	Not enough memory for a library
`01000005`	Corrupt memory list detected in FreeMem
`01000006`	No memory for interrupt servers
`01000007`	InitStruct() of an APTR source (obs.)
`01000008`	A semaphore is in an illegal state at ReleaseSemaphore()
`01000009`	Freeing memory that is already free
`0100000A`	Illegal 680x exception taken (obs.)
`0100000B`	Attempt to reuse an active IORequest
`0100000C`	Sanity check on memory list failed during
`0100000D`	IO attempted on closed IORequest
`0100000E`	Stack appears to extend out of range
`0100000F`	Memory header not located
`01000010`	An attempt was made to use the old message semaphores
`810000FF`	A quick interrupt has happened to an uninitialized vector

- graphics.library

`02010001`	MonitorSpec alloc, no memory
`02010002`	Not enough memory for copperlist
`02010003`	Copperlist is or was full
`02010004`	Copperlist corrupt
`02010005`	Not enough memory for copperlist header
`02010006`	long frame, no memory
`02010007`	short frame, no memory
`02010008`	fill, no memory for TmpRas
`02010009`	text, no memory for TmpRas
`0201000A`	BltBitMap, no memory
`0201000B`	regions, memory not available
`02010030`	MakeVPort, no memory
`0200000C`	GfxNewError

0200000D	GfxFreeError Could not free graphics
02011234	Emergency memory not available
02000401	unsupported font description used

- layers.library

03000001	layers out of memory

- intuition.library

04000001	unknown gadget type
04010002	create port, no memory
04010003	item plane alloc, no memory
04010004	sub alloc, no memory
04010005	plane alloc, no memory
04000006	item box top < RelZero
04010007	open screen, no memory
04010008	open screen, raster alloc, no memory
04000009	open system-screen, unknown type
0401000A	add SW gadgets, no memory
0401000B	open window, no memory
0400000C	Bad State Return entering Intuition
0400000D	Bad Message received by IDCMP
0400000E	Weird echo causing incomprehension
0400000F	couldn't open the Console Device
04000010	Intuition skipped obtaining a semaphore
04000011	Intuition obtained a sem in bad order

- dos.library

07010001	no memory at startup
07000002	EndTask didn't end
07000003	Qpkt failure
07000004	Unexpected packet received
07000005	Freevec failed
07000006	Disk block sequence error
07000007	Bitmap corrupt
07000008	Key already free
07000009	Invalid checksum
0700000A	Disk Error
0700000B	Key out of range
0700000C	Bad overlay
0700000D	Invalid init packet for cli/shell
0700000E	A filehandle was closed more than once

- ramlib.library

  `08000001`   Overlays are illegal for library segments

- expansion.library

  `0A000001`   Freeed free region

- console.device

  `11000001`   Console can't open initial window

- trackdisk.device

  `14000001`   calibrate: seek error
  `14000002`   delay: error on timer wait

- timer.device

  `15000001`   bad request
  `15000002`   power supply – no 50/60hz ticks

- disk.resource

  `21000001`   get unit: already has disk
  `21000002`   interrupt: no active unit

- bootstrap

  `30000001`   boot code returned an error
  `30018002`   no memory for Bootpicture during boot

- Workbench

  `31000001`   WBBadStartupMsg1 (3.0) ; no Font (2.0)
  `31000002`   WBBadStartupMsg2
  `31000003`   WBBadIOMsg
  `31010004`   WBInitPotionAllocDrawer
  `31010005`   WBCreateWBMenusCreateMenus1
  `31010006`   WBCreateWBMenusCreateMenus2
  `31010007`   WBLayoutWBMenusLayoutMenus
  `31010008`   WBAddToolMenuItem

31010009	WBReLayoutToolMenu
3101000A	WBInitTimer
3101000B	WBInitLayerDemon
3101000C	WBInitWbGels
3101000D	WBInitScreenAndWindows1
3101000E	WBInitScreenAndWindows2
3101000F	WBInitScreenAndWindows3
31010010	WBMAlloc
31038009	LoadWB error

- Foreign Hard/Software

35010100	no Retina hardware present
35010110	Retina does not have any memory at all
35010111	tried to free memory although no memory is in use
35010112	tried to free memory which has not been allocated
35010113	no Amiga memory for memory listnode
35010114	still some memory in use at library expunge
35010115	Retina internal
35010116	Retina internal
35010117	Retina internal
35010121	tried to remove a library internal monitor
35010122	LIB_Expunge and not all monitors removed
35010123	Retina internal
BADCODE1	BAD CODE 1 (as used with ALF-Software $\Rightarrow$ Checksum-Error)