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Gemini 80-Bus System

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#321

13th Jan 2020, 6:31 pm

john newcombe

Pentode

Join Date: Apr 2019 Location: Skipton, North

Yorkshire, UK. Posts: 172

Re: Gemini 80-Bus System

Ouote:

Originally Posted by john_newcombe [5]

Have a look at post 270, there is a link to the images there.

I just realised that these are the GM849 (with the MFB mod) not 849a.











#322

13th Jan 2020, 6:34 pm

john newcombe

Pentode

Join Date: Apr 2019 Location: Skipton, North

Yorkshire, UK. Posts: 172

Re: Gemini 80-Bus System

With the Galaxy MFB system re-assembled, albeit loosely, I was able to boot

Code:

CP/M (Bios 3.4) from the first 5.25 inch disk drive.

Gemini Multiboard Computer System

64K CP/M-80 vers 2.2 (Bios 3.4) A>

This did not give me an MFB system though as an attempt to run ANALYSE.COM reported the following.

Code:

```
**** Not a Gemini MFB System ****
```

Accessing drive B: wasn't too successful either, the Winchester made some noises and the following was reported...

Code:

```
A> B:
Drive B T=0002 S=0000
Xebec Error, code = 04
```

The Xebec Controller documentation suggests... Sector Not Found. The controller found the correct cylinder and head, but not the target sector.

So whilst not a fully functioning system, progress is steady.











■ 13th Jan 2020, 9:01 pm

qazxsw123

Triode

Join Date: Nov 2016 Location: Frinton on Sea,

Essex, UK. Posts: 31

Re: Gemini 80-Bus System

The boot up sequence I get with 5.25 floppy drive is very similar

Gemini Multiboard Computer System

64K CP/M-80 vers 2.2 (Bios 3.5)

A>_

But due to any programs on the disk I cant progress further at the moment.

#323

I' going to try the "simon" rom tomorrow to see I can work out the problem with the gotek.











14th Jan 2020, 9:45 am

#324

john newcombe

Pentode

Join Date: Apr 2019 Location: Skipton, North

Yorkshire, UK. Posts: 172

Re: Gemini 80-Bus System

Ouote:

Originally Posted by qazxsw123 🔊

The boot up sequence I get with 5.25 floppy drive is very similar

Gemini Multiboard Computer System

64K CP/M-80 vers 2.2 (Bios 3.5)

A>

But due to any programs on the disk I cant progress further at the moment.

I' going to try the "simon" rom tomorrow to see I can work out the problem with the gotek.

Bios 3.5 is interesting... I don't have that, I would like to get that archived.

Is your issue simply that the Gotek is using GEMDDDS format and the BIOS is looking for GEMQDDS? The symptoms you describe remind me of when I was trying to use GEMQDDS disks with BIOS 1.4 (GEMDDDS only), they would boot and the directory could be read, however, programs would often not load. Of course you may be using the GEMODDS images that I created some time back. I'm not sure if you are aware but those disk images were probably not quite right as earlier discussions in this thread have highlighted. These were removed from the library on GlassTTY.com a little while back in an attempt not to confuse things and introduce 'new' formats.

In terms of my own Galaxy, I am using Simon 4.1 for booting the floppy and will be trying to get a Gotek going today so that I can archive what I have so far. Obviously my aim is to get the hard drive working in the longer term to form a full MFB system. I will let you know how I get on later today.









Pentode

Join Date: Apr 2019 Location: Skipton, North Yorkshire, UK.

Posts: 172

Today wasn't too successful in terms getting the Gotek working or loading MBASIC for that matter and clearly I need to investigate all of these issues further.

Gotek

The Gotek boot image I have for CP/M with Bios 3.4 will not boot. In addition, I cannot get the machine to recognise anything other than the first floppy as A: and the Winchester as B: which prevents me from attaching the Gotek as B: or C: etc. Alas, the Winchester doesn't work at the moment either.

MBASIC

I can boot to a floppy and I have used READCAS.COM to try and load MBASIC from tape, whilst the system read the tape fine it failed to write to the disk. Several attempts were made but each failed in the same way.

FORMAT

As I only have one system disk for this machine I thought I would try and create another using FORMAT and SYSGEN from the existing disk. Format and verify worked fine but SYSGEN failed when copying the system from the working disk to the new disk.

Some successes though as SYSGEN did work when transferring the system from the system disk to an MFB Update Disk that wasn't originally bootable, it is now.

As I said, I will continue the investigation and keep the thread updated.











#326

15th Jan 2020, 7:54 am JohnBHanson

Hexode

Join Date: Aug 2009 Location: Worthing, Sussex,

UK. Posts: 467

Re: Gemini 80-Bus System

Sounds like you are trying to run an 829 bios on an 849 system. The bits in the drive select register are different but bios 3.4 should be able to cope with both I think.

Simple fix will be to jumper the GOTEK as drive C: which cpm should treat as drive B: if I have got my sums right. Then check with configuration as post 322.

Alternative is to modify the select routine - it can even automatically determine if it is a GM829 or GM849 by looking at bit 7 of port e5 (Should be zero for GM849 1 for GM829). Thats tricky with multi.mac as several bits of code need to be modified.

You might need a later bios for the floppy

I am not sure why write to the disk does not work - it could be that the floppy disk controller needs calibration but don't mess with that for the moment.

Last edited by JohnBHanson; 15th Jan 2020 at 8:06 am.











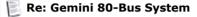
15th Jan 2020, 9:09 am john newcombe

Pentode

Join Date: Apr 2019 Location: Skipton, North

Yorkshire, UK. Posts: 172





Thanks John, I will be able to spend some more time this weekend to look at things again.









■ 15th Jan 2020, 4:36 pm

gazxsw123

Triode

Join Date: Nov 2016 Location: Frinton on Sea.

Essex, UK. Posts: 31



Re: Gemini 80-Bus System

If you have a teac fd55 drive, check jumper MX is removed, with it in place the drive will read data without checking the drive select signal.

https://retrocmp.de/fdd/teac/TEAC_FD...r-settings.pdf







#329



john newcombe

Pentode

Join Date: Apr 2019 Location: Skipton, North Yorkshire, UK.

Posts: 172

Re: Gemini 80-Bus System

Hi have now managed to load MBASIC onto one of the backup disks I received with the machine. There were two issues. The first was my fault in not understanding that when loading a file, the file extension should be omited. e.g.

Code:

A> WRITCAS MBASIC.COM

and

Code: A> READCAS MBASIC A> REN MBASIC.COM=MBASIC

The second issue is that, despite having two system disk backups, which look similar in terms of files on the disk etc. The commands behave differently. For example on one FORMAT.COM complains that the bios is not MFB, the second formats the disk as 80 track double density (and verifies) however, this cannot read or written to. I am assuming that some kind of check for MFB is present and causes it to fail. The bios used to create the disks clearly used the SYSTEMFW.CFG file. If I try and create a bios using MFB.CFG, GENSYS complains that the system track is not large enough but SYSTEMFW.CFG works fine.

Anyway enough babble, I ran your program i.e.

Code:

```
10 FOR I=0 TO 255 STEP 8
20 OUT &HE5,I+7
30 P=INP(&HE5)
40 PRINT HEX$(I+7),HEX$(P)
50 NEXT I
```

The output was...

Code:

```
7
        7F
F
        7F
17
        7F
1F
        5F
27
        7F
2F
        7F
37
        7F
3F
        1F
47
        7F
4F
        7F
57
        7F
5F
         5F
67
        5F
6F
        5F
77
        5F
7F
        1F
87
         7F
```

```
8F
         7F
97
         7F
9F
         5F
Α7
         7F
ΑF
         7F
В7
         7F
BF
         1F
C.7
         3F
CF
         3F
D7
         3F
DF
         1 F
E7
         1F
EF
         1F
F7
         1F
FF
         1F
```

I hope this helps. Once you have this complete will it mean I will be able to emulate an MFB system with the Simon 4.1 ROM? If so, that would be awesome.









16th Jan 2020, 9:16 pm

#330

JohnBHanson

Hexode

Join Date: Aug 2009 Location: Worthing, Sussex,

UK.

Posts: 467

Re: Gemini 80-Bus System

I have modified xbeaver to give the correct table.

Run with xbeaver gem925.cfg -o x to boot mfb (Boots directly from hd without ROMS) xbeaver gem925.cfg -o rx to boot mfb from roms

My config file for the gem925 is

Code:

```
if B echo Option B - load boot sector at 0000 for booting
if E echo Option D - Include Debug console
if E echo Option E - External Video Card
if L echo Option L - Load CPM from file file
if M echo Option M - Include GM833 Ram Disk
if R echo Option R - Use boot rom (Simon)
if T echo Option T - Trace io cycles
if X echo Option X - Use MFB system (Work in progress)
#if X set B
```

```
if E cpuclock 1
if !E cpuclock 1
if T board 0x0 intbus 0x0 0xe0 xrw trace
if T board 0xe0 intbus 0xe0 8 trw trace
if T board 0xe8 intbus 0xe8 0x17 xrw trace
if T bus trace
board 0xfe gm813 mmu
if !E if X board 0xb0 gm832 Gemini 925 MFB green keyboard gemini
if !E if !X board 0xb0 gm832 Gemini 925 amber keyboard gemini
if E board 0xb1 extbus 0x0a1 0x03 rw /dev/z80xbus
if E output 0xb3 0
if D board 0xa0 gm832 SysTrace green
if D output 0xal 0x1b 0x35
board 0xb8 serial 8250 bvrnet &
  ~/beaver/qm925/qm925/a%d &
  ~/beaver/gm925/gm925/b%d &
```











16th Jan 2020, 10:20 pm

JohnBHanson

Hexode

Join Date: Aug 2009 Location: Worthing, Sussex,

UK.

Posts: 467

Re: Gemini 80-Bus System

The mystery chip for IC14 looks to be an 74LS20 with pin 1 connected to +VCC. I cannot tell from the photo you sent me but is pin 1 bent under and connected to pin 14?

A few other pins look a bit strange from the photo...

From the photo the soldering down the lhs (eg pin1...pin5 or so) looks a bit odd - be nice to confirm that my assumption is correct.

PS- when you get the xbeaver emulator running with a gm849m scsi card can you double check the scsi.bas program - should be the same as the emulator version now.

Latest emulator version boots MFB system directly - Simon can boot from the hard disk if there is not a floppy inserted which is hard to do on the emulator as it stands.

The analyse program almost works - just identifies as Single not Double Density as my emulator ignores the

single/double density in the floppy disk selection. Also track read does not read any data.

However as MFB boots the data transfer utilities should work - however the floppy geometry in the config file will need to match.











17th Jan 2020, 1:22 am

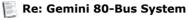
john newcombe

Pentode

Join Date: Apr 2019 Location: Skipton, North

Yorkshire, UK. Posts: 172





Thanks John, I will give it a go. I will also try and check the chip also.







#333

17th Jan 2020, 4:56 am

JohnBHanson

Hexode

Join Date: Aug 2009 Location: Worthing, Sussex,

UK. Posts: 467 Re: Gemini 80-Bus System

The emulator is done on a table lookup for the two "undefined" bits the emulator should now match your board.

Truth table for the two outputs are as follows

Code:

Read	lbac	k b	it	0x20	gives	the foll	owing
Bits	:6	5	4	3	Out	RawIn	RawOut
Idx							
0	0	0	0	0	1	07	7f
1	0	0	0	1	1	0f	7f
2	0	0	1	0	1	17	7f
3	0	0	1	1	0	1f	5f
4	0	1	0	0	1	27	7£
5	0	1	0	1	1	2f	7f
6	0	1	1	0	1	37	7f
7	0	1	1	1	0	3f	1f
8	1	0	0	0	1	47	7f
9	1	0	0	1	1	4 f	7f
a	1	0	1	0	1	57	7f
b	1	0	1	1	0	5f	5f
С	1	1	0	0	0	67	5f
d	1	1	0	1	0	6f	5f
е	1	1	1	0	0	77	5f

f	1	1	1	1		0	7 f	1f
and	Rea	dba	ck	bit	0x	40		
Bits		6	5	4	3	Out	RawIn	RawOut
Idx	• /	U	J	4	3	out	Kawiii	Rawout
0	0	0	0	0	0	1	07	7f
1	0	0	0	0	1	1	0f	7f
2	0	0	0	1	0	1	17	7£
3	0	0	0	1	1	1	1f	5f
4	0	0	1	0	0	1	27	7£
5	0	0	1	0	1	1	2f	7£
6	0	0	1	1	0	1	37	7£
7	Λ	Λ	1	1	1	Λ	2 f	1 £











#334

17th Jan 2020, 5:10 am

JohnBHanson

Hexode

Join Date: Aug 2009

Posts: 467

Location: Worthing, Sussex, UK.



This is the format program I have - the MFB version

- Attached Thumbnails -









#335



17th Jan 2020, 7:34 pm

john newcombe

Pentode

Join Date: Apr 2019 Location: Skipton, North

Yorkshire, UK. Posts: 172

Re: Gemini 80-Bus System

Today I took the R/O tab of the only master disk I have and created a system.cfg that used A (QDDS), B: (DDDS) and C (Winchester). This was written to the system track and saved to a file also. The disk now boots and recognises the 40 track 5.25 drive. The Gotek when connected in place of this drive is also accessed, however, the files cannot be read form any of the DDDS images.

I have several physical disks, one is labelled 'Master disk' and the others seem to be MFB update disks. The dates vary from 1984-1986. Each of the disks has a format utility, however, only the one from 1984 will actually run. The others complain that the system is not using the MFB bios. The error text is correct as I am using the biosfw as biosmfb doesn't fit on a floppy. With 1984 version of the format program the disk gets formatted and verified at 80 tracks double density which I am assuming is QDDS. However, it cannot be read under bios 3.4.

As a result of both of the above, I could be forgiven for thinking that the disk/Gotek read issues are related.

To take things further, I think it's time to get a Simon ROM version of XBeaver MFB working so that I can have a play with some disk images.









#336

17th Jan 2020, 8:11 pm

JohnBHanson

Hexode

Join Date: Aug 2009 Location: Worthing, Sussex,

UK.

Posts: 467

Re: Gemini 80-Bus System

The two programs you need are gensys - to generate a standard or a mfb system and config to configure an mfb system

eg gensys mfb.cfg

to generate an mfb system

gensys system.cfg generates a standard non mfb system

mfbfw.cfg gives a floppy boot for the mfb system

I started with the original image from you to create my two images

There are two system tracks 0 and 1 and can contain different systems

boot 0

or

boot 1

can be used from the command line to boot either the system from track 0 or track 1.

use nswp *.cfq

to browse the .cfg files. The short files are for use with config

Hope that helps.











17th Jan 2020, 9:43 pm #337

JohnBHanson

Hexode

Join Date: Aug 2009 Location: Worthing, Sussex,

UK. Posts: 467



Re: Gemini 80-Bus System

In post 330 change gm829m scsi to either gm849 scsi or gm849m scsi







#338

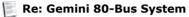


iohn newcombe

Pentode

Join Date: Apr 2019 Location: Skipton, North

Yorkshire, UK. Posts: 172



I have been using GENSYS with the floppy to create non-mfb system disks that is fine but prevents running MFB programs such as format.

I now have Xbeaver booting to an MFB system following your config, using the original gm925 disk image and running GENSYS to upgrade it to MFB. My real hardware does not have a working Winchester and the MFBFW.CFG file uses .biosfw which is a non-mfb bios.

i currently do not have any floppy disk images that will work with 3.4 the DDDS ones that worked with bios 1.4 do not seem to work with 3.4. If you have a floppy image that works for you under 3.4 MFB I would love to get a copy.











#339



JohnBHanson

Hexode

Join Date: Aug 2009 Location: Worthing, Sussex,

UK.

Posts: 467

Re: Gemini 80-Bus System

Tried and failed, then read the "Multi Format Bios Manual". Page 2 states "A is fixed in type as the winchester...."

I tried to generate a .cfg file and then run gensys mfbflop.cfg and get *** Error **** while configuring logical drive A BIOS cold boot does not match your Drive A Unable to proceed

So I think you need a winchester to work MFB











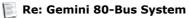
JohnBHanson

Hexode

Join Date: Aug 2009 Location: Worthing, Sussex,

UK.

Posts: 467



I have created a bios 3.4 (not mfb) boot disk with disk A and B as floppy (QDDS), C,D winchester

Included in the zip file is the gem925.cfg to make this work.

Boots under simon with command line

xbeaver gem925.cfg -o xr

Hope this helps you.

look at bootflop.cfg

(PS You will need to check you have the files in the correct places)

note the format used is T80.2.10.0.512 if you are going to copy this to a real floppy drive.

Attached Files

34boot.zip (125.0 KB, 3 views)

Last edited by JohnBHanson; Yesterday at 2:54 am.





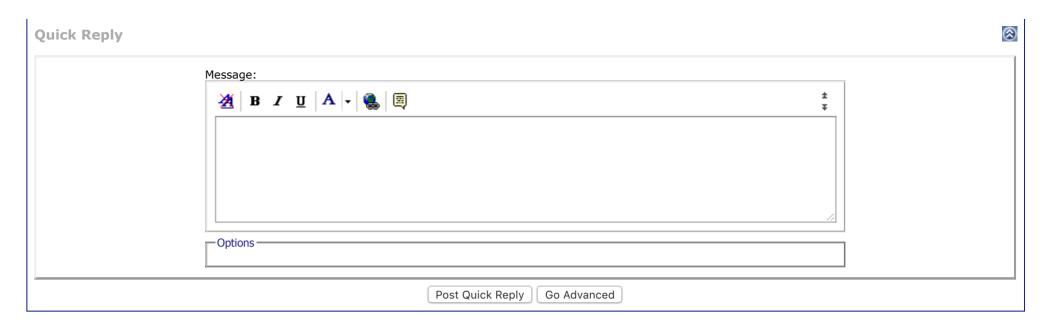




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