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**Gemini 80-Bus System**

**Welcome, [john\\_newcombe](#).**

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**Vintage Computers** Any vintage computer systems, calculators, video games etc., but with an emphasis on 1980s and earlier equipment.



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19th Jan 2020, 9:21 pm

#341

[john\\_newcombe](#)

Pentode

Join Date: Apr 2019  
 Location: Skipton, North  
 Yorkshire, UK.  
 Posts: 183

**Re: Gemini 80-Bus System**

John: Thanks for the above I have the Emulator booting and the disk image works fine. I haven't looked closely but from the size I am thinking that this is a raw image rather than a DMP (or other layout), is this correct? I didn't appreciate that XBeaver could use raw images. The image won't boot the actual machine (using the Gotek) which is a little puzzling, however, I will investigate this further as this could simply be a Gotek config issue.

I have attached links to four photographs of IC 14 in the hope this will help you unravel this particular mystery. Let me know if you need more.

[https://glasstty.com/wiki/index.php/...849\\_IC14\\_1.jpg](https://glasstty.com/wiki/index.php/...849_IC14_1.jpg)

[https://glasstty.com/wiki/index.php/...849\\_IC14\\_2.jpg](https://glasstty.com/wiki/index.php/...849_IC14_2.jpg)

[https://glasstty.com/wiki/index.php/...849\\_IC14\\_3.jpg](https://glasstty.com/wiki/index.php/...849_IC14_3.jpg)

[https://glasstty.com/wiki/index.php/...849\\_IC14\\_4.jpg](https://glasstty.com/wiki/index.php/...849_IC14_4.jpg)



19th Jan 2020, 11:08 pm

#342

[JohnBHanson](#)

Heptode

Join Date: Aug 2009

**Re: Gemini 80-Bus System**

Raw is the format that is used if a format option is not specified (eg the default).

Note that some formats (such as compressed .imd) are read only.

Location: Worthing, Sussex,  
UK.  
Posts: 518

Most non raw formats are copied into ram or parsed on initialisation.

A useful trick with raw format is to use a symbolic link in the configuration file. It is then possible to change the symbolic link from a command shell while xbeaver is running to change floppy disk. Do not try this trick with formats that are cached

ps - check the first sector matches your system especially the first two bytes.



20th Jan 2020, 5:33 am

#343

[JohnBHanson](#)

Heptode

Join Date: Aug 2009  
Location: Worthing, Sussex,  
UK.  
Posts: 518

**Re: Gemini 80-Bus System**

Looks like IC14 is a 74LS51 - thanks John for all the work



20th Jan 2020, 5:44 am

#344

[JohnBHanson](#)

Heptode

Join Date: Aug 2009  
Location: Worthing, Sussex,  
UK.  
Posts: 518

**Re: Gemini 80-Bus System**

I have checked the signature wanted in simon.rom (offset 0xf031) and it is 6d 47 which is correct for booting the mfb floppy image I posted.



20th Jan 2020, 9:59 am

#345

[john\\_newcombe](#)

Pentode

Join Date: Apr 2019  
Location: Skipton, North  
Yorkshire, UK.  
Posts: 183

**Re: Gemini 80-Bus System**

Whilst investigating the Gotek issue, I have started to get confused over the disk layouts. I would appreciate it if you confirm my understanding. i.e.

- The Gemini Bios interprets GEMDDDS (double sided 35 track disks) as 70 track disks with 10 (512 byte) sectors per track.
- The Gemini Bios interprets GEMQDDS (double sided 80 track disks) as 80 track disks with 20 (512 byte) sectors per track.

Is this correct?

With GEMDDDS the disk was accessed in the order; Side 0, Trk 0, Sect 0-9 followed by Side 1 Trk 0 Sect 0-9 etc. and the Goteks 'interleaved' file-layout setting seemed to work well...

Code:

```
# interleaved: Interleaved cylinder ordering: c0s0, c0s1, c1s0, c1s1, ...
```

My confusion is that I cannot get my head around what the physical layout of the GEMQDDS disk is. Looking at the disk image it looks like the sectors are arranged differently with what is presumably CPM stored on sectors 1 to 10 and 21-30 with 11-20 all set to E5. I am wondering if for the purposes of the Gotek whether these need to be shuffled in someway, I certainly can give it a try as it will only take a few lines of code.

In terms of the Gotek, my thinking is that a physical disk has 2 sides, 35/80 cylinders and 10, 512 byte, sectors per track irrespective of how the data is arranged, however, there is a question of how the Gotek accesses the disk image file. Based on the successful GEMDDDS images on the rack system I am assuming it simply accesses them in order.

For completeness, the full range of file layout options are as follows...

Code:

```
# Optional: Image file track layout. Default is "interleaved".  
# Comma-separated values:  
# sequential: Sequential cylinder ordering: all side 0, then side 1.  
# interleaved: Interleaved cylinder ordering: c0s0, c0s1, c1s0, c1s1, ...  
# reverse-sideN: Side-N cylinders are ordered from high to low (N=0,1).  
# sides-swapped: Sides 0 and 1 ordering is swapped in the image file.  
# eg. "sequential,reverse-side1"  
#file-layout = interleaved
```



20th Jan 2020, 10:23 am

#346

[JohnBHanson](#)

Heptode

Join Date: Aug 2009

**Re: Gemini 80-Bus System**

I think you want interleaved. It actually does not matter what CP/M believes it is actually what is recorded in the file that is important and that is defined by the geometry statement in the .cfg file for the emulator.

Location: Worthing, Sussex,  
UK.  
Posts: 518

QDDS format is 80 tracks, 2 sides and 10 sectors per track. However CP/M does not understand sides and hence the bios re-maps the side count by doubling either the number of sectors or the number of tracks. When the bios drives the hardware it actually drives it as 80 cylinders 2 sides and 10 sectors per track and that is what you need for your floppy setup.

The next issue is the file format should be consistent for the gotek and the xbeaver emulator. This is controlled by the geometry parameter depending on the letter 'S' being present. In raw format without the S option the order of tracks in the file is cyl0side0 cyl0side1, cyl1side0, cyl1side1. Each track consisting of sectors 0..9 in order.

see routine flp\_linear\_block in floppy.c for details.

So I think you need interleaved set for your file layout - which appears to be also the default.

I hope that helps.



20th Jan 2020, 10:51 am

#347

[john\\_newcombe](#)

Pentode

Join Date: Apr 2019  
Location: Skipton, North  
Yorkshire, UK.  
Posts: 183

**Re: Gemini 80-Bus System**

OK, thanks, but what about the bootable floppy image you sent me?

When you helped me construct the DDDS disk image for the Gotek the boot sector was on side 0 sector 0 and cp/m was on the following 16 sectors (if I remember correctly), with all of the sectors stored in the image in order, it all worked nicely with the interleaves setting.

The image we have for QDDS seems to use side 0 sector 0 for the boot sector then sectors 1-10 and sectors 20-30 for the OS, are you saying that I can just ignore that and leave it all to the boot loader/bios to sort this out?



20th Jan 2020, 11:04 am

#348

[JohnBHanson](#)

Heptode

Join Date: Aug 2009  
Location: Worthing, Sussex,  
UK.  
Posts: 518

**Re: Gemini 80-Bus System**

I enclose a log of the disk activity for booting - this should explain everything....

Attached Files

[mfbboot.zip](#) (20.5 KB, 31 views)





23rd Jan 2020, 2:57 am

#349

[john\\_newcombe](#)

Pentode

Join Date: Apr 2019  
Location: Skipton, North  
Yorkshire, UK.  
Posts: 183

**Re: Gemini 80-Bus System**

Many thanks, eally appreciated. I will take a look.



27th Mar 2020, 10:03 pm

#350

[fighne65](#)

Diode

Join Date: Mar 2020  
Location: Sherborne, Dorset,  
UK.  
Posts: 1

**Re: Gemini 80-Bus System**

So having spent my first years out of college working on Nascom and Gemini Systems 80Bus boards if I can be of help please ask. I still have a G811 running R/PM as my Z80 board.



16th Apr 2020, 1:44 pm

#351

[john\\_newcombe](#)

Pentode

Join Date: Apr 2019  
Location: Skipton, North  
Yorkshire, UK.  
Posts: 183

**Re: Gemini 80-Bus System**

Quote:

Originally Posted by **fighne65**

*So having spent my first years out of college working on Nascom and Gemini Systems 80Bus boards if I can be of help please ask. I still have a G811 running R/PM as my Z80 board.*

Thanks so much, I am sure your knowledge will get tapped. I am in the middle of trying to bring a Gemini MFB back to life but have had to step away for a few weeks/months. Hopefully will be able to get to look at it again soon, the support of this forum has been amazing.

I have a G811 with RP/M running also, it's using a Gotek for storage at the moment as the floppy I have is a little unreliable.



16th Apr 2020, 4:38 pm

#352

**AdrianH**

Hexode

Join Date: Mar 2020  
Location: Blackburn with  
Darwen, Lancashire, UK.  
Posts: 332

**Re: Gemini 80-Bus System**

My word, Gemini Systems CP/M Z80 8 bit systems, this is all bringing back memories to me.

I was a Nascom II user, and then later bought a Gemini system with an 8 inch 5Meg drive, how many years ago was that I wonder?

I passed loads of gear, boards mag's etc to a collector that lived in Leyland many years ago, so perhaps some of the old boards are still around, a speech synth board, paged ram, 19 inch case etc. Also a twin tape drive system.

Memories of graphics programs on a green screen drawing strange shapes.

Adrian



22nd Apr 2020, 10:56 am

#353

**john\_newcombe**

Pentode

Join Date: Apr 2019  
Location: Skipton, North  
Yorkshire, UK.  
Posts: 183

**Re: Gemini 80-Bus System**

Quote:

Originally Posted by **AdrianH**

*My word, Gemini Systems CP/M Z80 8 bit systems, this is all bringing back memories to me.*

*I was a Nascom II user, and then later bought a Gemini system with an 8 inch 5Meg drive, how many years ago was that I wonder?*

*I passed loads of gear, boards mag's etc to a collector that lived in Leyland many years ago, so perhaps some of the old boards are still around, a speech synth board, paged ram, 19 inch case etc. Also a twin tape drive system.*

*Memories of graphics programs on a green screen drawing strange shapes.*

*Adrian*

Good to hear from you, I think we need to get in touch with that collector. These things are quite rare and I would love to try and safe and share as much of the system software etc as I can.



22nd Apr 2020, 8:59 pm

#354

**AdrianH**

Hexode

Join Date: Mar 2020  
Location: Blackburn with  
Darwen, Lancashire, UK.  
Posts: 332

**Re: Gemini 80-Bus System**

There is not a chance I can remember any details, can only suggest you try this web page (If you can cope with the green text) <http://www.nascomhomepage.com>

Adrian



24th Apr 2020, 10:18 am

#355

**qazxsw123**

Triode

Join Date: Nov 2016  
Location: Frinton on Sea,  
Essex, UK.  
Posts: 44

**Re: Gemini 80-Bus System**

I have an interesting problem other members may be able to help with.

using a gemini 3 card system gm849/813/832 running cpm 2.2 when I enter a simple "DIR" command only one directory item is listed but if I enter "DIR \*.COM" all the com files are listed, same for "DIR \*.TXT" I've tried this with different hardware and different floppy drives with different copies of CPM. using the SD program will list all the files on the disk.

Any suggestions?



24th Apr 2020, 1:22 pm

#356

**kan\_turk**

Hexode



Join Date: Mar 2014  
Location: Dublin, Ireland  
Posts: 300

**Re: Gemini 80-Bus System**

Hi

Have you tried "DIR \*.\*" ?

*Last edited by kan\_turk; 24th Apr 2020 at 1:24 pm. Reason: Omission*



24th Apr 2020, 2:30 pm

#357

**qazxsw123****Re: Gemini 80-Bus System**

Triode

Join Date: Nov 2016  
Location: Frinton on Sea,  
Essex, UK.  
Posts: 44



yes only one file displayed, if i look in the temp area above f700h I can see a number of files so the directory was read correctly and try and run one of these programs they run correctly.



30th Apr 2020, 8:31 pm

#358

Mixtel0

Diode



Join Date: Jul 2011  
Location: Preston, Lancashire,  
UK.  
Posts: 8

**Re: Gemini 80-Bus System**

Hiya Adrian!  
(Waves...)

I'm Mick, that collector in Leyland. My current collection of Nascom & Gemini stuff (and quite a bit of info) is at <http://www.nascom.info>

Funnily enough, I started reading this forum yesterday in the hope that there might be something on disk interfacing for the Gemini. I've been tidying out my shed and came across a "kit" (i.e. pile of bits) for what I assume was my old Nascom-1 19" rack. It made me think that perhaps it's time I had a working Gemini. I have previously tested a GM813 and an IVC and they appear to be working - unlike either of the Gemini keyboards that I have. I've just ordered one of the cheap logic analyzers off ebay so figuring out what's up should be easy enough with that.

Currently I've no means to read & write EPROMs so that may have to wait a while. I don't think I have anything that I haven't seen mentioned on here already though. Actually, the whole project is going to have to wait until I've finished sorting the shed out. lol.



2nd May 2020, 12:54 pm

#359

john\_newcombe

Pentode

Join Date: Apr 2019  
Location: Skipton, North  
Yorkshire, UK.  
Posts: 183

**Re: Gemini 80-Bus System**

Quote:

Originally Posted by **Mixtel0**   
*Hiya Adrian!  
(Waves...)*

*I'm Mick, that collector in Leyland. My current collection of Nascom & Gemini stuff (and quite a bit of info) is at <http://www.nascom.info>*

*Funnily enough, I started reading this forum yesterday in the hope that there might be something on disk interfacing for the Gemini. I've been tidying out my shed and came across a "kit" (i.e. pile of bits) for what I*



*assume was my old Nascom-1 19" rack. It made me think that perhaps it's time I had a working Gemini. I have previously tested a GM813 and an IVC and they appear to be working - unlike either of the Gemini keyboards that I have. I've just ordered one of the cheap logic analyzers off ebay so figuring out what's up should be easy enough with that.*

*Currently I've no means to read & write EPROMs so that may have to wait a while. I don't think I have anything that I haven't seen mentioned on here already though. Actually, the whole project is going to have to wait until I've finished sorting the shed out. lol.*

I can probably sort out any eproms you might need I have a decent programmer, so when you are ready just send me a hex file. an eprom (blank or otherwise) along with a envelope/stamp for returning it. I have some Gemini eproms here anyway so may not even need a hex file. Glad to help.



2nd May 2020, 2:50 pm

#360

[qazxsw123](#)

Triode

Join Date: Nov 2016  
Location: Frinton on Sea,  
Essex, UK.  
Posts: 44

**Re: Gemini 80-Bus System**

disk image files for cpm 2.2 bios 3.5 and basic programs

[Attached Files](#)

[GM555 MASTER.zip](#) (120.9 KB, 4 views)



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