

AmigaMAD

1 - 2018 - Issue 62 - 17th year

Articles:
re-Amiga 1200
The Amiga clan

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Front page photo: Internet

ANOTHER year has passed, and Amiga motherboards. the new one is just ahead

A couple of Amiga celebrities has gone since you did anything with fallen amongst us, these people are really getting old.

We too are getting old. I remember the very day I first connected to IRC, this was in the year of 2000. And now celebrating its 30th anniversary.

It feels like yesterday when I connected to IRC for the first time. But also IRC has aged, not only with style. Nowadays there is more idling than ever, and some channels are becoming dead due to this, for instance #amiga @ EFnet.

In addition there are these spam bots, which are hard to avoid, and which only spreads their shit everywhere.

TIME to ask YOU! How long has an Amiga? Have you at least played something using an emulator? Did you know that lgames like Lemmings and Great Giana Sisters are playable for free online with any browser with support for HTML5? Use Google, then you will find it. Google is your friend.

In 2022 Norwegian Amiga Association will celebrate 30 year anniversary. Give that we still are alive then, I think already now I can promise that we will celebrate this anniversary with easy contests and fat prizes. He who lives, will see.

NEXT over to the subscriber figures. Vi har 23 on our list who all gets a hard copy of the Norwegian magazine, but only around 1/3 of theses are paying subscribers. Ve



It seems like the only working thing against these bots are english edition, but what is setting the channel +s (secret), outstanding for our efforts are the numbers of downloads of our PDF issues, which can be downloaded

We soon writes 2019, but the Amiga community still are working towards an Amiga of tomorrow. Read our article at the from around 600 to over 3000 per coming pages about AmigaOne issue. This makes us happy. X5000 and Tabor.

The article about re-Amiga 1200 is maybe for the advanced, but it is important for bringing light onto what CAN be done to rescurer old

*Long Live Amiga
Happy New Year
Tommy Strand
Editor*

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The Next Gen Amiga

The cult of Amiga tries to breathe life into our beloved Amiga
Read all about it in this popularmechanics article ...

Meet the dedicated few who are working in the shadows to keep an ancient suite of software alive, waiting for it to thrive again. The IBM and Apple machines

were better known among the legends of 80s computer. But perhaps no computer was more beloved by its users than the Amiga.

In the mid-1980s, Commodore released the Amiga 1000, a beast of a machine whose specs blew away the hardware of its day, and which became a

The first Amiga:
The Amiga 1000



cult favorite. But by 1995, after several iterations of Amiga and years of questionable decisions by the Commodore company, the Amiga brand closed up shop. In the two decades since then, the rights to the computer and its software suite have been sold off and stuck in legal purgatory. And yet now, a group of hardware enthusiasts are trying to bring the revered 1980s computer into the 21st century.

“I’M NEARLY DUMPING \$1,000 INTO A 30-YEAR-OLD COMPUTER”

On an early June day, I watched one of those new old machines come to life. It might just resurrect the Amiga name—if anybody finds out it exists, that is.

The Ferrari of Computers

Jamie Krueger is one of the Amiga’s 21st century apostles. Today he is hosting the demo in his apartment in Janesville, Wisc., where a machine from

Amiga’s alternate future roars to life. Standing in his living room, Krueger relates the strange story of Amiga’s first birth and death.

The Amiga was first born at company called Hi-Toro, run by staffers who had recently cut ties with Atari to strike out on their own. There they began an ambitious project reinvent the computer, basing their new device on the Motorola 68000 microprocessor and code-naming it “Lorraine.”

Their work did not go unnoticed. After a messy bit of litigation, the company—now renamed to Amiga—was purchased by home computing giant Commodore. It was an odd pairing.

The Commodore 64, released in 1982, had established itself as one of the most popular home computers. With a low price of \$595 (equivalent to some \$1,500 today), the C64 had saturated the market like none other, but at the cost of using cheap components that caused

headaches for plenty of unlucky owners. Still, the Commodore 64 trudged on.

The Amiga 1000, released in 1985, was quite the opposite. It had a sleek quick-load OS that could boot almost instantly. It rocked 256 kilobytes of RAM to the C64’s mere 64. It had a 256-color display at a time when the NES could support only 64 and most home computers, including the C64, couldn’t juggle more than 16. Amiga brought arcade-quality visuals into your living room. And so it became the computer geek’s computer, but not only for its top-tier specs.

“I think the attraction in the programming community was the complete openness of the architecture and the ability to get as much performance out of the hardware as possible,” says Dale Luck, who worked on the Amiga graphics library prior to the release of the 1000 and is now a senior software architect at Roku. “It allowed for the





development of truly revolutionary games and colorful and easy to use UI.”

AMIGA’S VISUALS WERE ARCADE-QUALITY, IN YOUR LIVING ROOM.

But the Amiga 1000 was more than just a pretty face. “The Amiga was decades ahead of its time—look no further than preemptive multitasking,” says Perry Kivolowitz, a professor of computer science at Carthage College. “The Mac, until OS X, was a cooperative multitasking machine—you’ve experienced the handicap of this if you’ve ever seen the Spinning Beach Ball of Death. In a cooperative environment if any task hangs, the computer hangs. On a preemptive system, any hung task slows the machine a small bit but doesn’t kill it.”

Unsurprisingly, this dream machine did not come cheap. A fully kitted-out Amiga 1000 would set you back \$1,790 in 1985. That’s more than \$4,000 today. It was expensive, but not preposterously so. A basic IBM PC from 1981, despite being considerably less capable, would cost you around \$1,600. Lower-end options like the C64, meanwhile, cornered a more casual market with sub-\$1,000 prices.

And the Amiga sold. Sales for the entire fleet of Amiga systems, which grew to around a dozen models, reached 4 million by the time Commodore closed its doors in 1994. That’s pittance next to the C64’s 17 million, but the Amiga was a premium machine. And while the Commodore 64 still holds its retro appeal, the Amiga ascended to a higher plane of nerd. “The Amiga is in the rarified

space occupied by old Ferraris, tube-based Macintosh audio gear and frankly, great old wine,” Kivolowitz says.

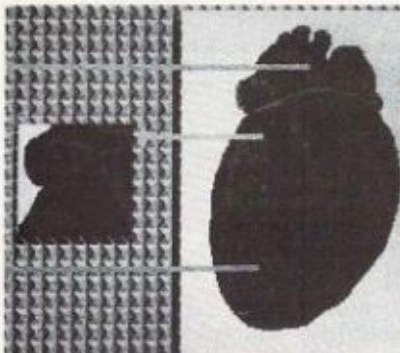
That loyalty it inspired may not have been enough to save Amiga in the 1990s. But it was more than enough to resurrect it for a second life today.

Across Generations

As I watched Jamie Krueger’s AmigaONE X5000 in his living room, I was joined by 19-year-old Jacob Niemuth, a game design student at University of Whitewater. Niemuth wasn’t even born until years after Commodore shuttered, but his connection to Amiga is strong. A self-described retro gamer, Niemuth got his start in Facebook groups by buying and selling old-school hardware, including cathode ray tube monitors and, of course, Amigas. He has an Amiga 2000—a 1987 model that’s older than he is—

AMIGA!

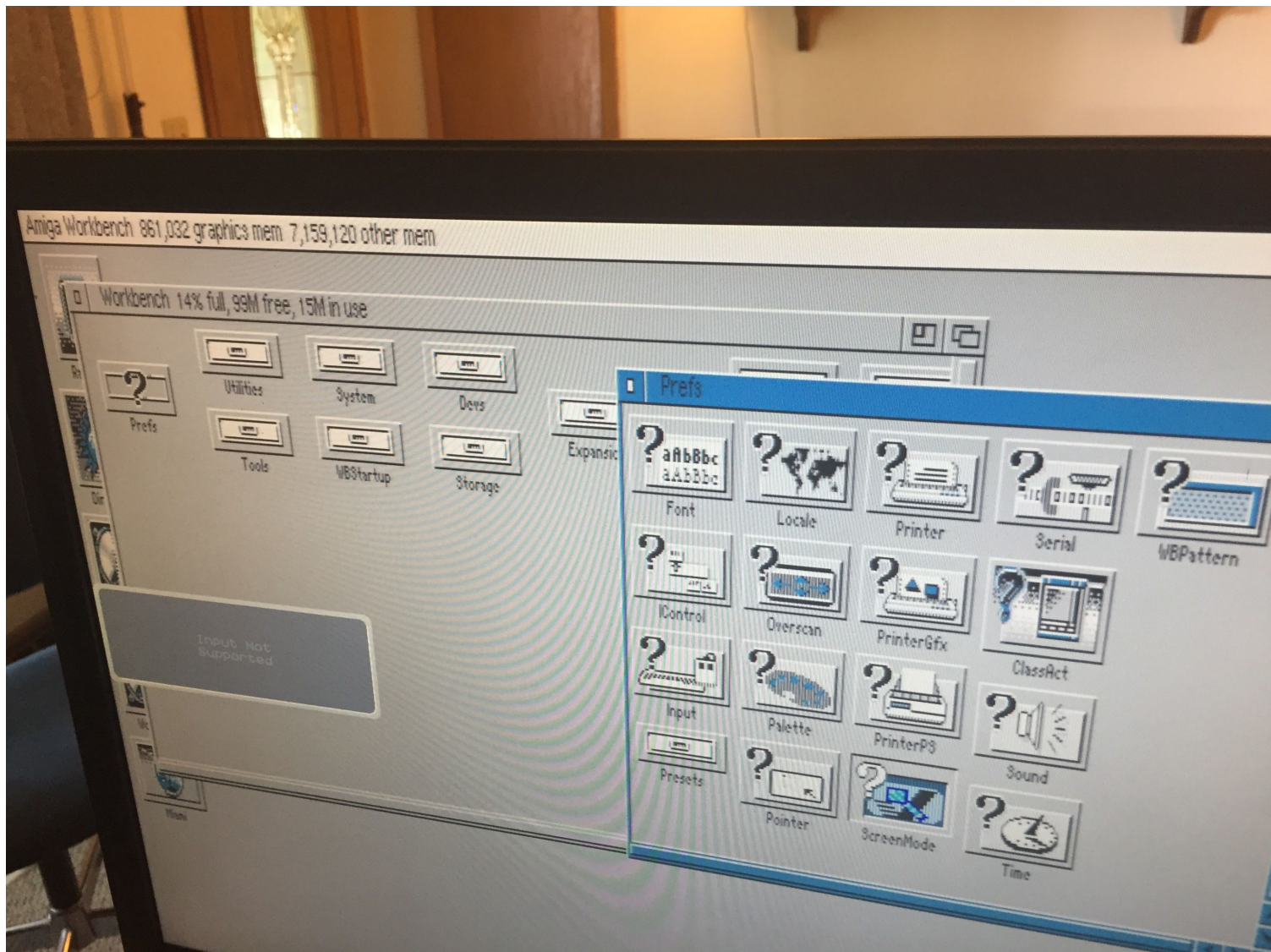
* IN PICTURES *



July 23, 1985. In the specialty computer stores around the country, business appears as usual; posters of Charlie Chaplin look-a-likes and partly-eaten fruit hang jauntily from walls, crates of PC's are stacked neatly on the plush carpeting, and cash registers ring merrily (or do their electronic equivalent) as a steady stream of no-nonsense consumers trades sobering sums of cash for armloads of impressive-looking equipment and provocatively packaged software. Reassured by solid-feeling ads, and comforted by names which ring with the sound of permanence (IBM...Apple...AT&T...) customers and salespersons smile knowingly at each other; it feels good to be sure, to be in the know, to have an eye for quality, to be **BUYING RIGHT**.

A similar sense of well-being and business-has-never-been-better must have pervaded the average carriage shop on the day Henry Ford unveiled his Model 'T'.

July 23, 1985. If you are interested in history, you will want to remember that date; it is the day that IBM's PC, Apple's Mac, and scores of lesser silicon marvels of our decade became obsolete.



that he uses to write chiptunes and to explore the games of the past in their natural habitat.

“There are a lot of games for it, and the music’s awesome too,” he tells me. His favorites are Battle Squadron, Ork, and a port of Galaga. One of his current projects is backing up Krueger’s software library to a home server. There are more than 2,000 Amiga discs in his collection.

Niemuth’s Amiga 2000 isn’t an off-the-shelf model straight out of an 80s catalog. It’s souped-up, with an ethernet port—though the machine’s built-in browser that can barely handle the modern web—and has hardware tweaks

as well, such as a video card to push resolutions past the limits of yesteryear. His goal is to build a machine that might even be

“I’m nearly dumping \$1,000 into a 30-year-old computer”

cable of Twitch stream editing, someday. “I’m nearly dumping \$1,000 into a 30-year-old computer,” Niemuth says with a smile and a sigh.

When you do so much custom tinkering, setting up the system can require a little troubleshooting. During the process, Niemuth and Krueger try out a series of monitors from a collection in Krueger’s basement, a stockpile of some 20 or so machines built up during his years working as a computer repairman. Many of those machines, unsurprisingly, are Amigas.

“My first Amiga was an Amiga 500, and that just opened my world,” Krueger says. It wasn’t just the computer itself he loved, but also its potential. One of the Amiga’s most appreciated features was built-in room for hardware enhancements that could operate almost entirely independently of the Amiga’s main computational brain.

“A great deal of what you could do on the Amiga were things you could do without the CPU at all,” Krueger says. This was thanks to the Amiga operating system that could handle various processes simultaneously. One of these chips, the Video Toaster, became one of the most famous video hardware devices, providing capabilities that Krueger compares to “taking a TV station and put it on a card.”

That unique power is what has kept enthusiasts like Krueger from abandoning the Amiga dream, despite the how rocky the road has gotten.

From the Ashes

The path from Commodore’s demise in 1994 to the AmigaONE X5000 today is a winding one, full of the arcane twists and turns of intellectual property law. The basics go a little something like this.

After Commodore folded, the Amiga name went to a company called Escom, which put out two new computers with leftover parts before being acquired by Gateway. There, the Amiga name languished for two years before two of Gateway’s own engineers bought the rights for \$5 million and incorporated Amiga Inc. in 1999. In the early 2000s they

strove to bring back the classic name with “Amiga Anywhere,” a bid to create a multi-platform software environment that could run on the lion’s share of mobile and desktop operating systems of the day, enabling a sort of universal app store long before Android or iOS ever existed.

“AMIGA ANYWHERE WENT NOWHERE.”

It was a fantastic idea that could have dominated the emerging mobile device market if Amiga Inc. had been able to pull it off.

Krueger, who worked on the project, sums up its fate with no sugarcoating. “Amiga Anywhere went nowhere. It was a fantastic idea that could have dominated the emerging mobile device market if Amiga Inc. had been able to pull it off. Unfortunately, they ultimately did not have the resources to make it happen.”

Meanwhile, Amiga’s attempts to update its traditional desktop software was met with legal complications. When Amiga hired a company called Hyperion to

port the AmigaOS to PowerPC processors, which would allow Amiga’s OS to expand to non-Amiga hardware—the two got tangled in a lawsuit that saw Hyperion emerge with exclusive rights to both the Amiga logo and the next generation of Amiga software—versions 4.0 and beyond.

Outside of emulation, the only way to run AmigaOS 4.0 or 4.1 is to get new Amiga hardware, now produced chiefly by a company called A-EON, run by Trevor Dickinson. He produces new hardware under the name AmigaONE, with two models called the X1000 and X5000, and works closely with Hyperion. Neither of those machines are cheap, though. The X1000 is \$2,300, while the X5000 will run you \$1,900.

“The single biggest problem with the Amiga computer system today is the cost,” Krueger says. “The next biggest challenge is software.” That’s because, well, there isn’t much.

There are somewhere between 1,000 and 2,000 of these neo-Amiga machines out there. So the developer community is small, though Krueger prefers to characterize the situation as an “open market.” After all, there is high demand among the otherwise small fanbase, but low supply. The machines are in desperate need of basic digital amenities like an office suite or a modern web browser. It’s not as easy as just making an Amiga port of Firefox either. The DNA of the Amiga’s operating system necessitates that its software be built from the ground up, and the community

is small enough that creating new applications from scratch is a real challenge.

And yet, Krueger says, the modern Amiga community is fractured by infighting. The small coterie of retailers selling motherboards, cases, peripherals, and other Amiga hardware are prone to falling into petty feuds. Amiga on the Lake, the only online retailer for Amiga in North America, recently stopped carrying A-EON devices and anything sold by the European store AmigaKit over an undisclosed disagreement. “We are still here and ‘WILL’ be carrying more stuff soon. However no more X5000 or A1222 or, frankly anything produced from either company,” Amiga on the Lake said in a statement on its website. However, a month or so after this disagreement, it seems to be resolved.

THE COMMUNITY IS FRACTURED BY INFIGHTING

“It comes to a breakdown in communication,” Krueger said. He wouldn’t elaborate further when asked about the root of the problem, not wanting to upset delicate negotiations.

The New New Future

The resolution paves the way for what some in the community hope will be a game changer: the A1222. Also known as the “Tabor” this new model is designed to be the first “entry level” A-EON computer. The board will be priced around \$500—much, much less than that of the X1000 or X5000. The tradeoff is that it will have a slightly less powerful processor

than the X5000, the current “budget” option.

“I think we will sell quite a few of them,” Krueger says, framing the A-EON’s success as a boon for the community as a whole and emphasizing its collective urge to grow. “That’s the goal anyway.”

If anyone finds out, that is. The modern church of Amiga is small, but every bit of news is a change to gain a few converts. A review of the X5000 showed up on Ars Technica, but more important than the generally favorable review was the mention it exists at all.

“It’s tough,” Krueger said. “It’s really tough to make a living as a developer exclusively for the AmigaOS.”

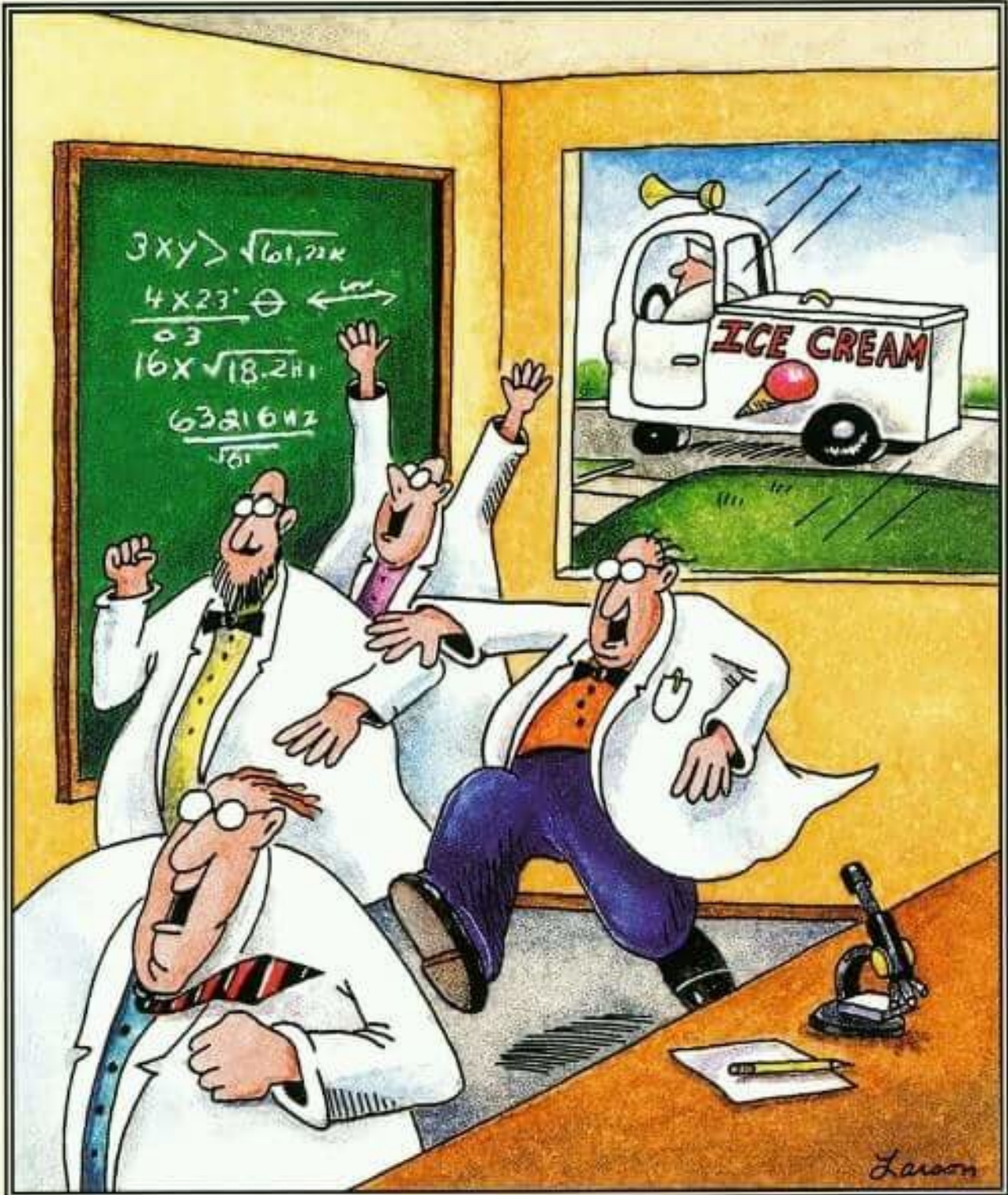
But there might just be a silent market for these resurrected retro computers, full of folks who just haven’t yet heard the news. I texted a picture of one of the new Amiga rigs to my own uncle, who had gotten his start on an Amiga word processor so many decades ago. His Amiga was the second computer I ever saw up close, after my brother’s Commodore. Before I knew it, we were on the phone and chatting for only the second or third time in my life.

“Bizarre it’s still kicking,” he said, tying up some 20 minutes of enthusiastic reminiscing, a heartfelt and off-the-cuff endorsement of the aging tech that I could tell surprised him as much as it surprised me. He hadn’t heard about the new rigs. Now that he has, he certainly won’t forget.

Source: popularmechanics.com

amiga.zone

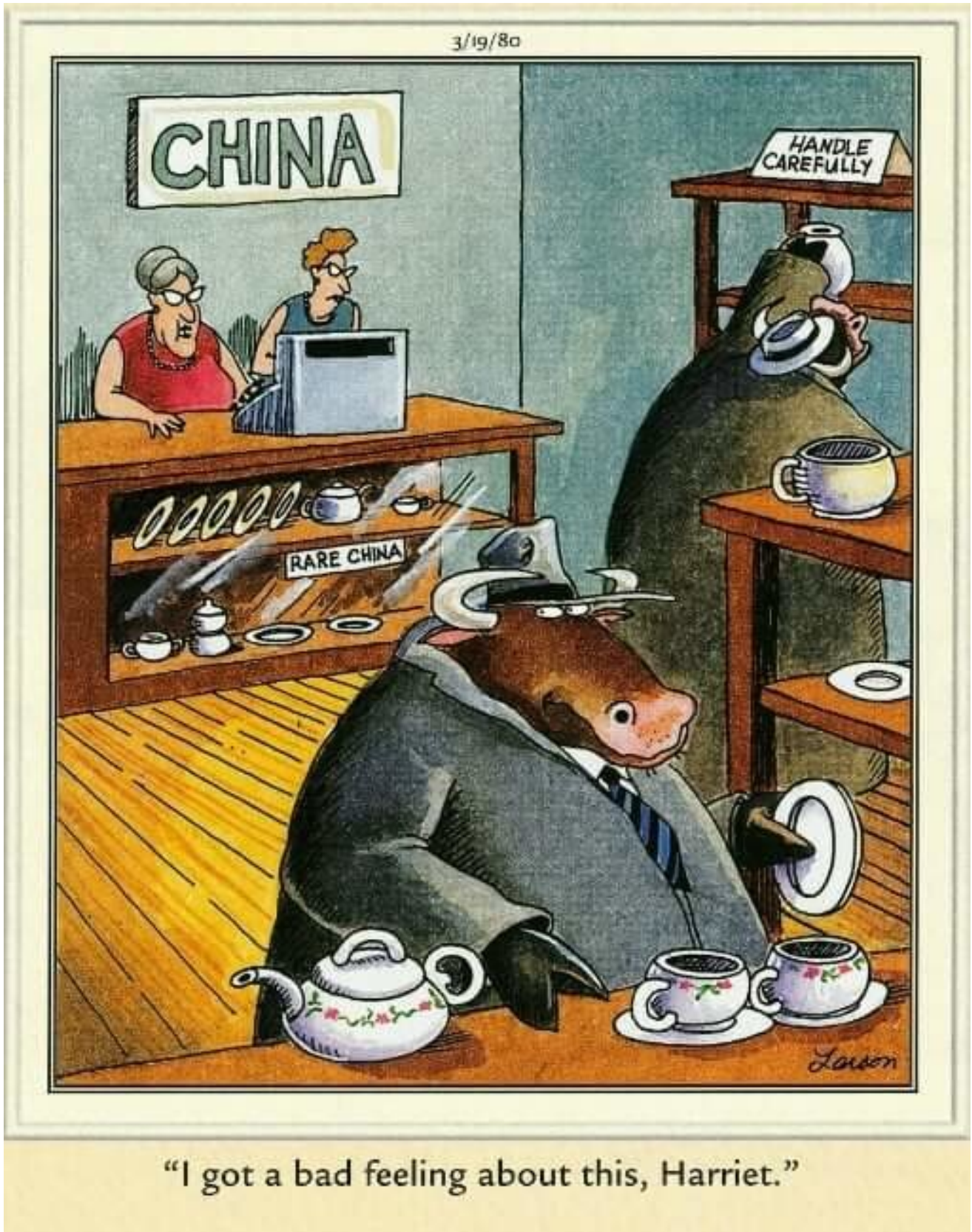
6/16/82



12/1/80



“See, Frank? Keep the light in their eyes and you can bag them without any trouble at all.”



Introducing the Re-Amiga

Introducing the Re-Amiga 1200

One slow day (12th of June 2018) being on a hotel doing work for one week I asked on Facebook on the "Commodore Amiga" group:

"Reversetime. What PCB do you think I should reverse? Come with ideas. A board often damaged by battery or caps. Preferably smaller ones. So give me hints of.. "whats next"

I got several ideas. CV64, CD32 etc. then I got the "Amiga 1200! I have a empty PCB!"

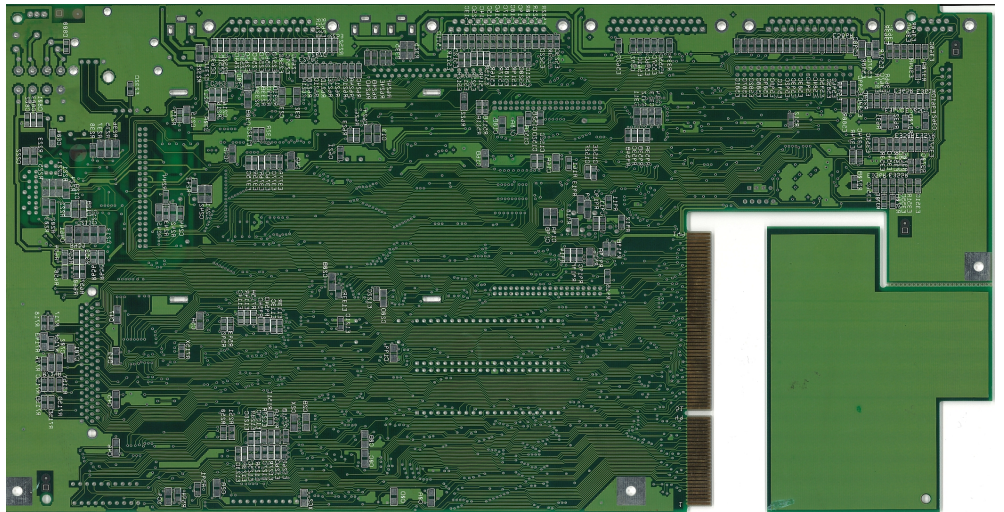
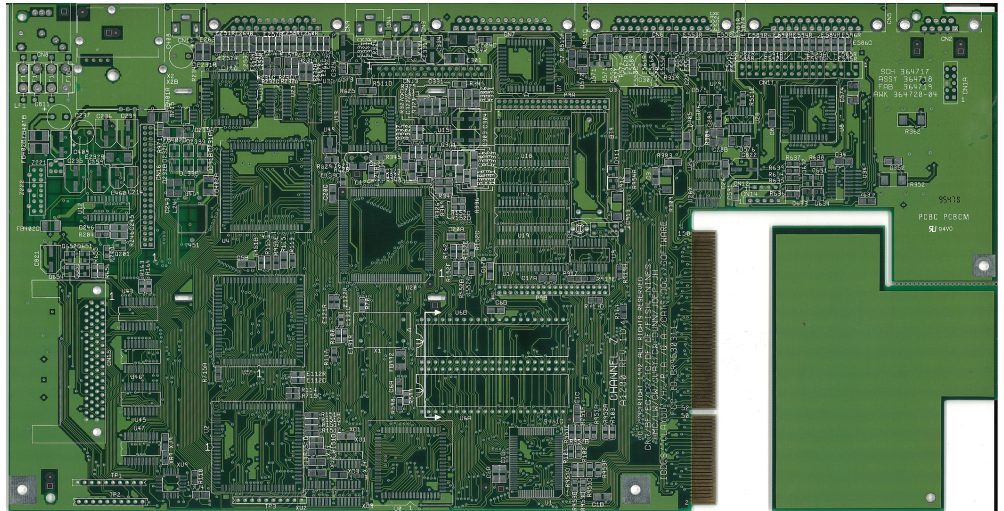
So, I asked for a scan of that PCB and got it. So that's why I decided, YES! I will do this. I have a lot of dead 1200s at home and leakage killed a lot.

So.. he (Folkert De Gans) scanned it for me. and I started to work on it. this is the reason why it is the Rev 1D.4 and not the latest. that is what we had.

AND it is also by far the most common board anyway.

I started Sprint Layout and started to do my work.

This is the scanned pictures of the PCB:



BUT! for the mother of god. WHY SPRINT!?

This is a very good and legit question. to design stuff in Sprint is a total nightmare. BUT if you want to make a copy of a PCB. it is fast, really fast and you DO get a gerber in the end. this is why. I totally know that for development it is utter crap. but it lets me get my job done. We can do more PCBs I am happy. I might try to figure out a way to move this

data to eagle/kicad or whatever. but until then. I will do more stuff in sprint.

if you want to have a look at the workfile, the demo version works very well, downloadable at:

<https://www.electronic-software-shop.com/Ing/en/electronic-software/sprint-layout-60.html>

Anyway, back to topic

So it started with putting all components at the correct locations (kinda approximate, not 100% exact position some 10th of millimeters off but good enough.

While talking about this on Facebook, another person (Nico Blüthmann) told that he could send me a dead a1200 pcb to help me. and he did.

So I did:

A1200TopCopper
A1200BottomCopper

Now drawing traces is just a matter of time:

componentsprint2

(see next page for pictures)

Here you can see how I have drawn traces above the scanned picture. Anyway. now it is just the very time consuming time to draw everything. and also checking the scans many many MANY times over. did I miss a trace to a via. did I... I also used <http://www.amigapcb.org/> a lot by selecting pins of every chip see where it did go. measure on my boards and use the test function in sprint if everything was connected.

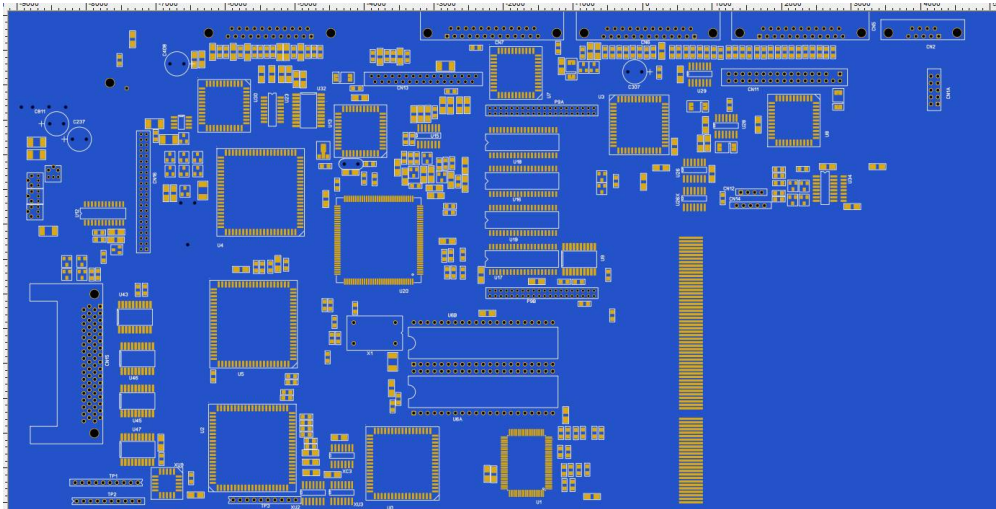
and when all traces was done, I "just" had to find what vias should be connected to GND or VCC. and then.. I was done!

A1200pcb

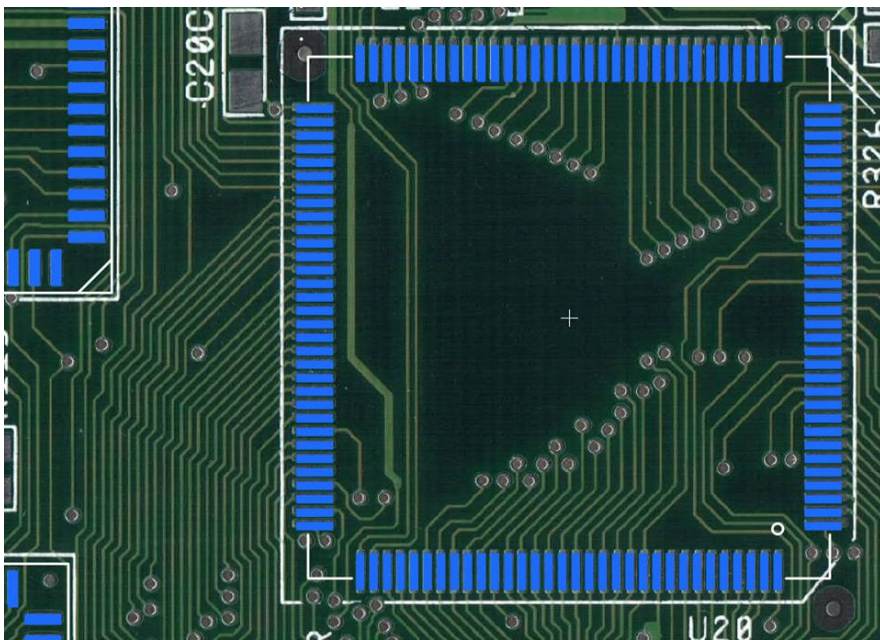
BUT. I wanted to do stuff. so what did I want to do?

first of all, the CXA chip for composite is EOL, it also requires some hard to get delay lines (the square weird components close to the power connector) and a friend of mine is doing this nice S-Video/Composite/RGB Adapter: <http://electronics.chroma.se/svideo.php>

So why not put THAT stuff there instead, RF modulator will be



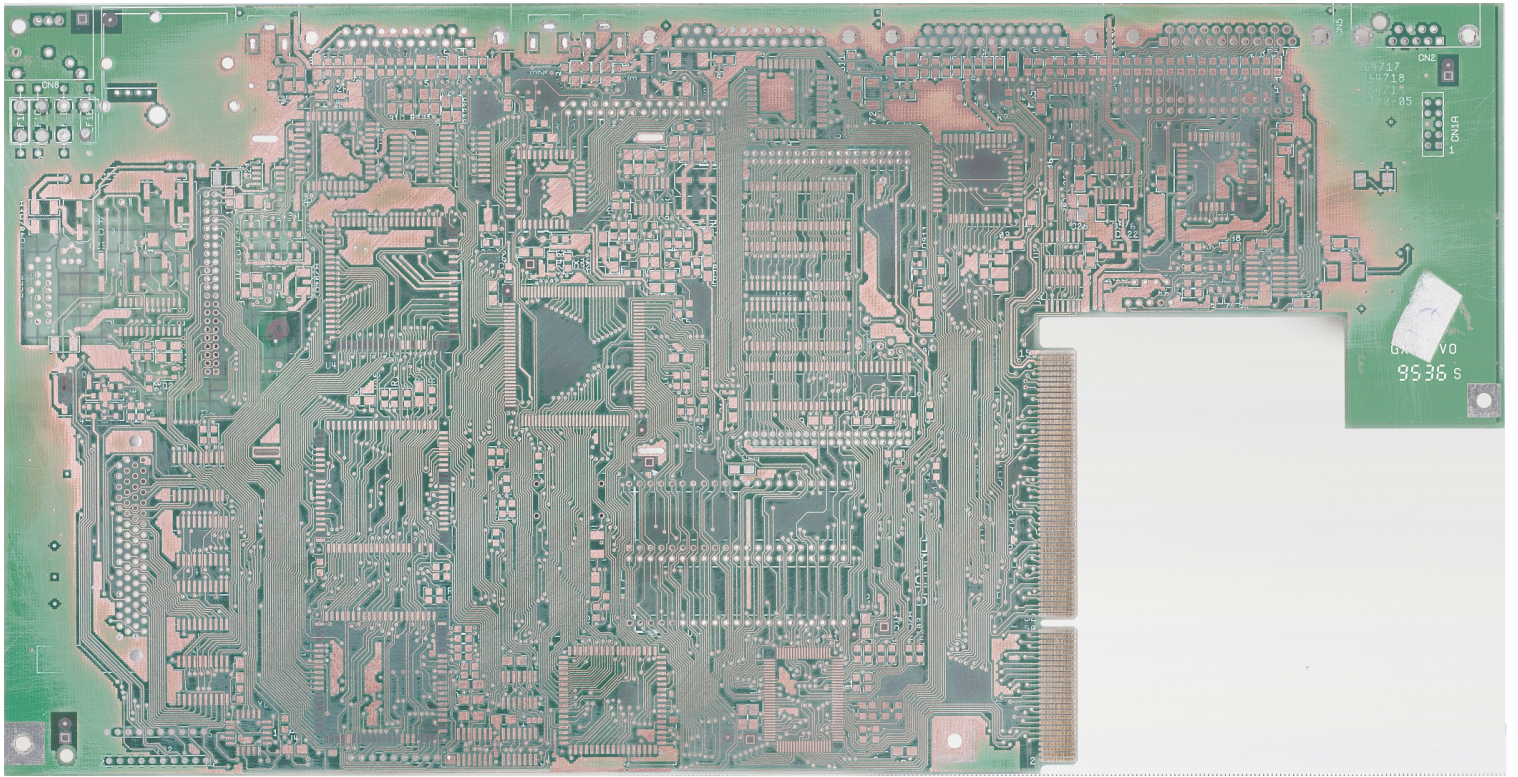
A1200 components



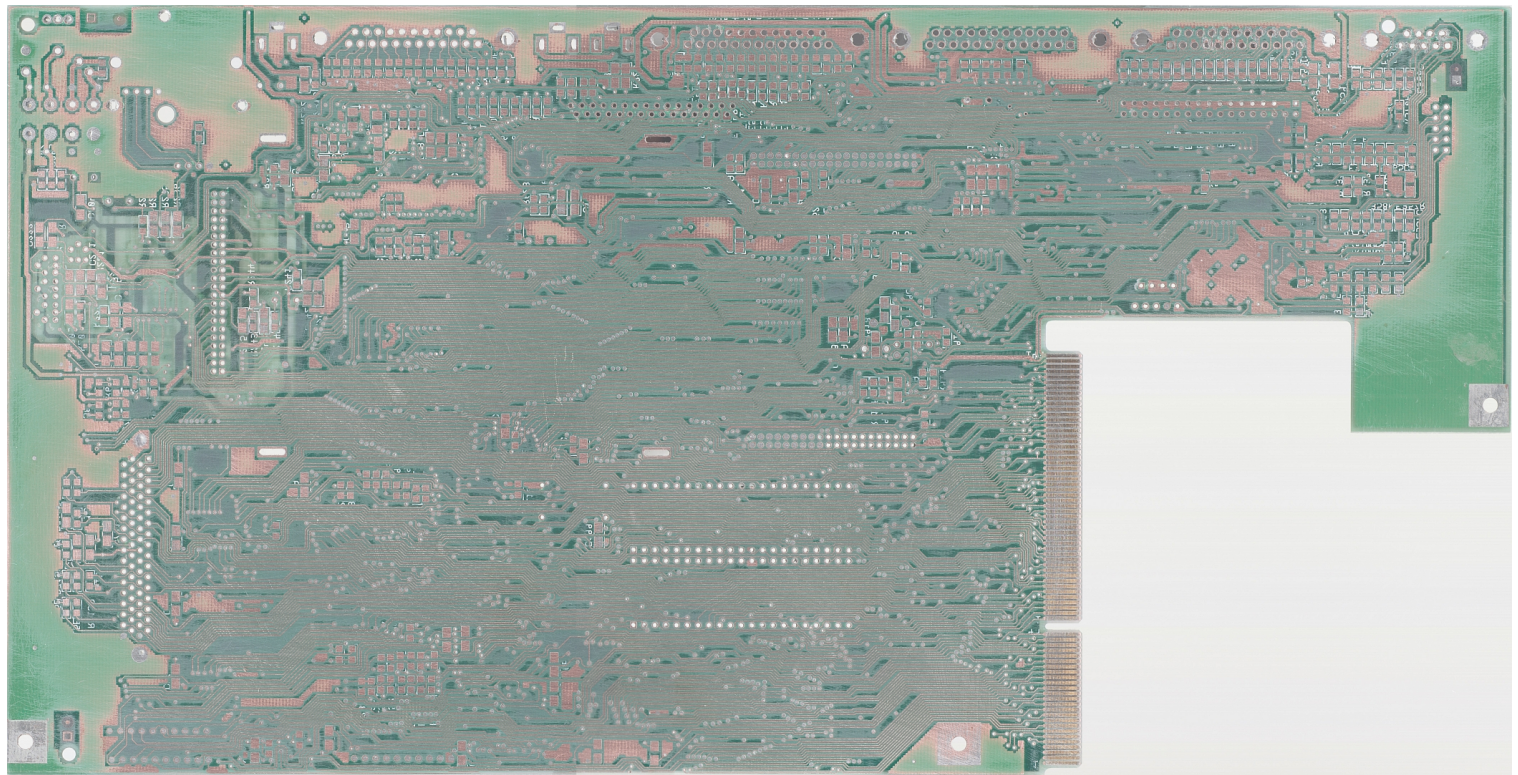
Well.. in sprint you can have the scanned picture as a background:

I decided to remove all components and sand it down to the copper, so silkscreen etc doesn't confuse me.

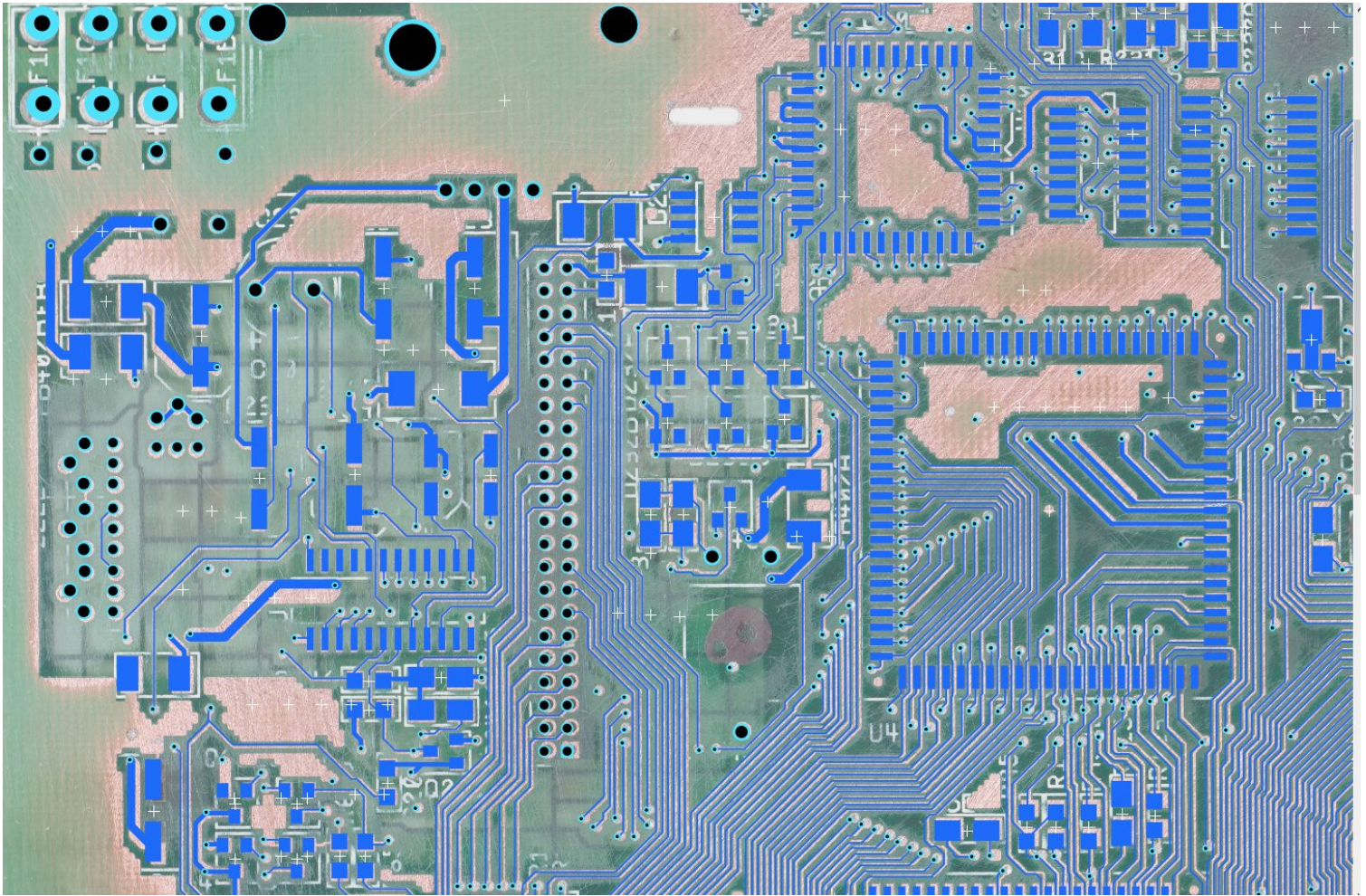
and then just simply "draw" traces above the scanned picture. and this is why it works so fine for a job like this.



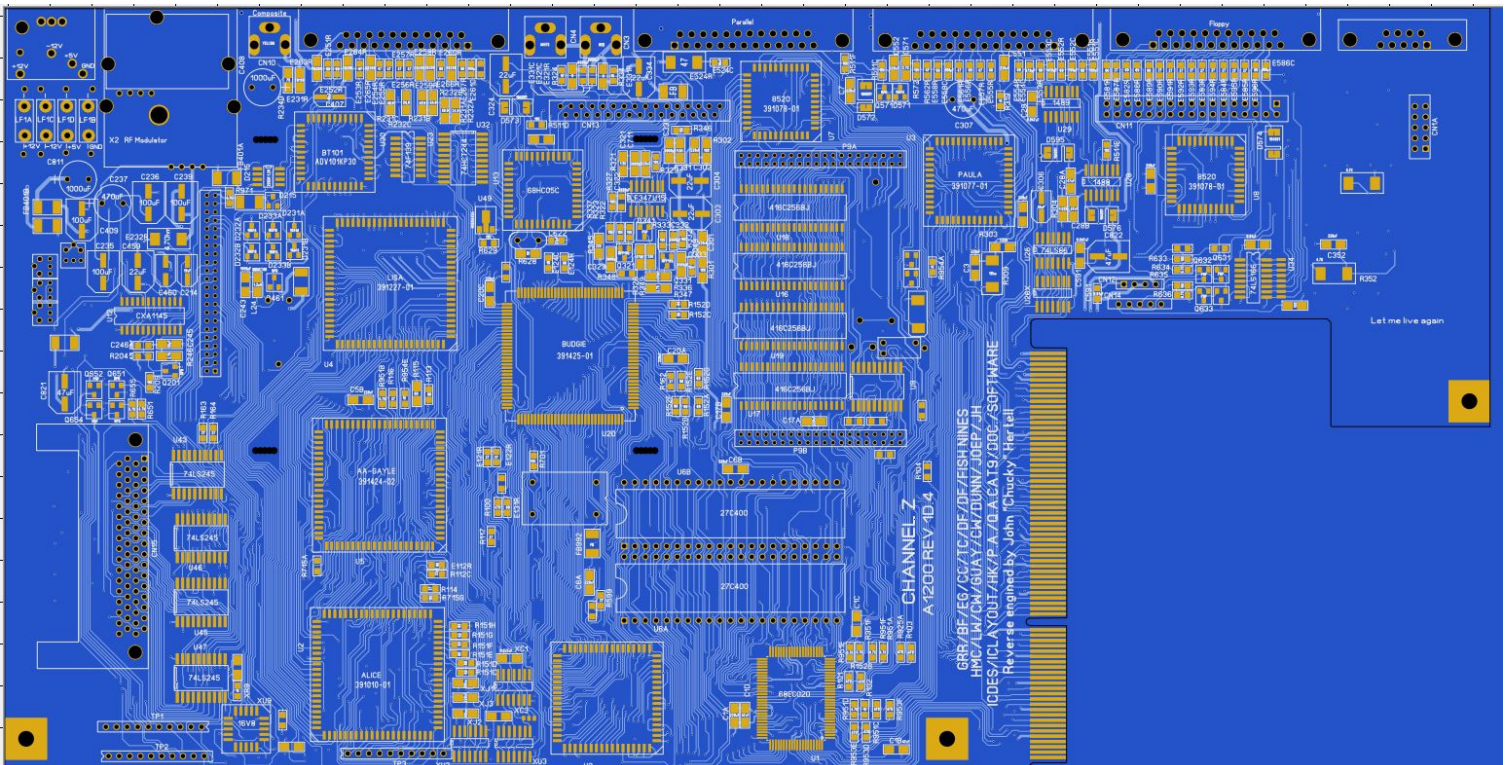
A1200TopCopper.jpg



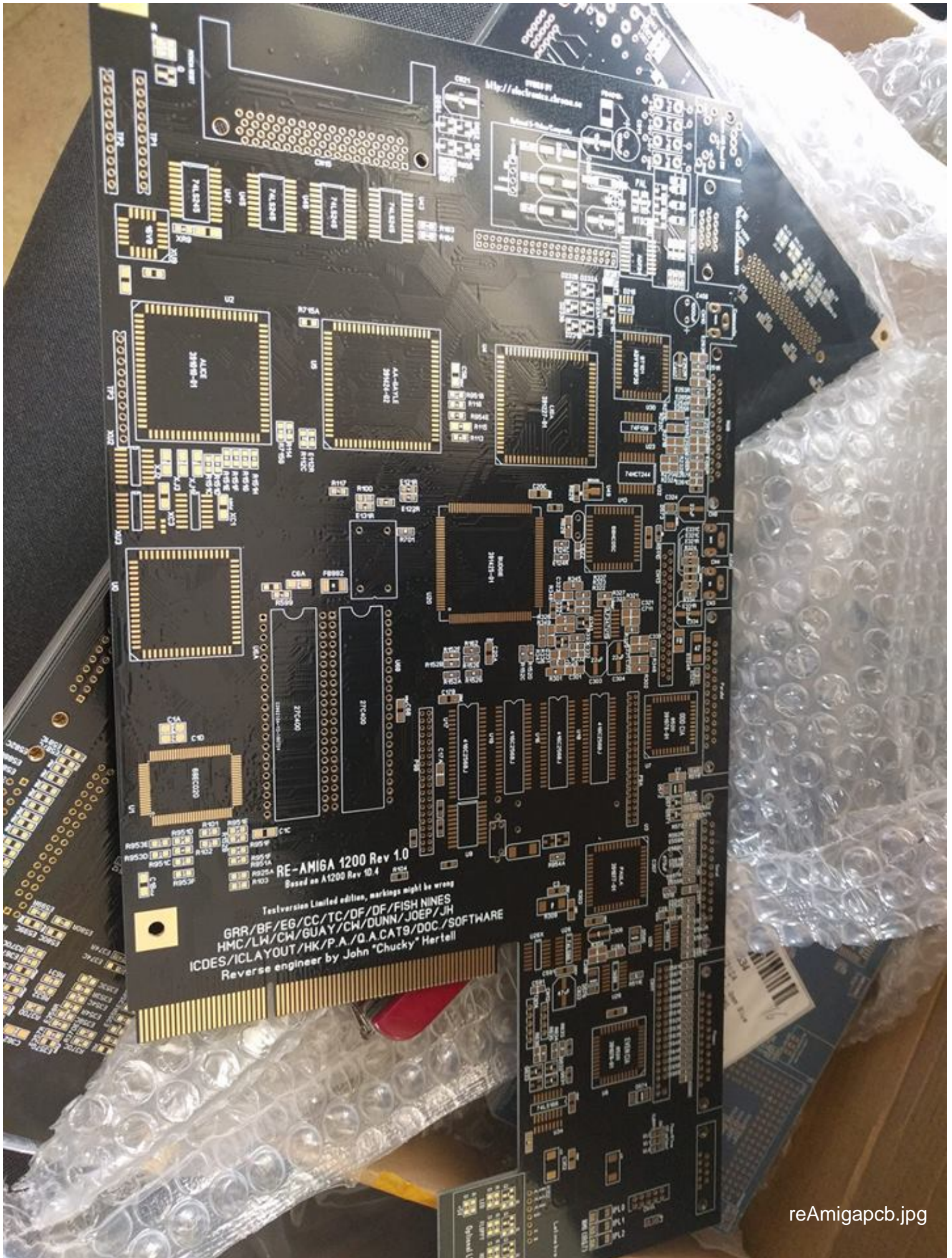
A1200BottomCopper.jpg



sprintcomponent2.jpg



A1200pcb.jpg



reAmigapcb.jpg

removed. I asked him and got his eagle-workfiles and permission to use his design.

so I did.

I also made traces to power/gnd to the CPU thicker, I made generally all power traces thicker.

I also added connectors for keyboard like the rev2 PCB of the A1200, and IRQ7 possibility, and a jumper so IF you want to mess with the floppy SEL signals you can do this without any strange socket solutions.

Did this. and ordered a test run of the PCB.

And I started to solder it. it DID start.. but.. my DiagROM only showed flashing backgroundcolors, but nothing on screen.

I checked my files against scanned picture and all. Everything LOOKS ok. until I suddenly come to think of one thing. Commodore have this through-hole resistor mounted on the pads between ALICE and the FPU Place. and after playing with it. YES.. it now worked.

I also had an issue with I had a stuck FIRE1 pressed on joyport 1 all the time. this was as when I soldered I had some missing components so I moved from the old pcb. it showed that one ceramic cap was shorted doing this. lesson learned: NEVER move passives from the old PCB.

some other minor issues all depending on having the wrong value of components etc at some locations. I HAVE sold some pre-release PCBs. IF you have

please click on this link to download an erratafile how to fix this. Updated 2018-08-17: <http://www.hertell.nu/webfiles/R1200-Issues.docx>

Anyway. I got all working. AND it also does boot a BPPC 60MHz 68060, 330MHz PPC with 128MB ram from a stock light 4.5A Amiga PSU, something my original 1D.4 PCB doesnt do.

so the ReAmiga 1200 is an Amiga 1200 Rev 1D.4 with the following changes:

Supports Round AND Square power connector. (round have 2 incoming +5V wires)

New reworked Composite logic, with additional S-Video Support RF-Modulator removed and replaced with optional VGA Connector that is buffered, Still NO Scandoubler

Selectable SEL signals for floppy, you need to cut the traces and solder in a connector to select:

Optional NMI (IRQ7) Possibility Reset header

A500 Compatible Keyboard connector (actually not tested yet)

Support for the Rattleswitch with solderoles for required signals so no need of a socket on CIA.

Extra power connectors for +12 and +5V fans. also extra power connector close to CPU slot to add power or fans.

PCMCIA Reset fix so cardreset software is not needed.

Optional onboard LEDs where LED and +5V are separated also optional "opt" LED, with jumper wire for pcmcia activity LED.

I have tested this board for several hours, with Apollo 1260, Blizzard PPC, Blizzard 1230 MK2, MBX 1230. no issues.

BUT this IS a hobby project, I

leave no warranty etc.

So BUILDING the shit? well I will do a post later about this when I get the "production" pcbs showed here in this post. as this post would be too long anyway.

Are you screaming for the FILES?

Well sure. as I want stuff to be open I try to open most of my work. this is no exception:

first of all the Amiga 1200 clone. THIS IS NOT TESTED WHATSOEVER. You are on your own! but if you do a pcb and it works and send to me, first person doing that I will send an ReAmiga PCB as exchange:

<http://www.hertell.nu/webfiles/A1200-CLONE.zip>

Remember the patch I missed:

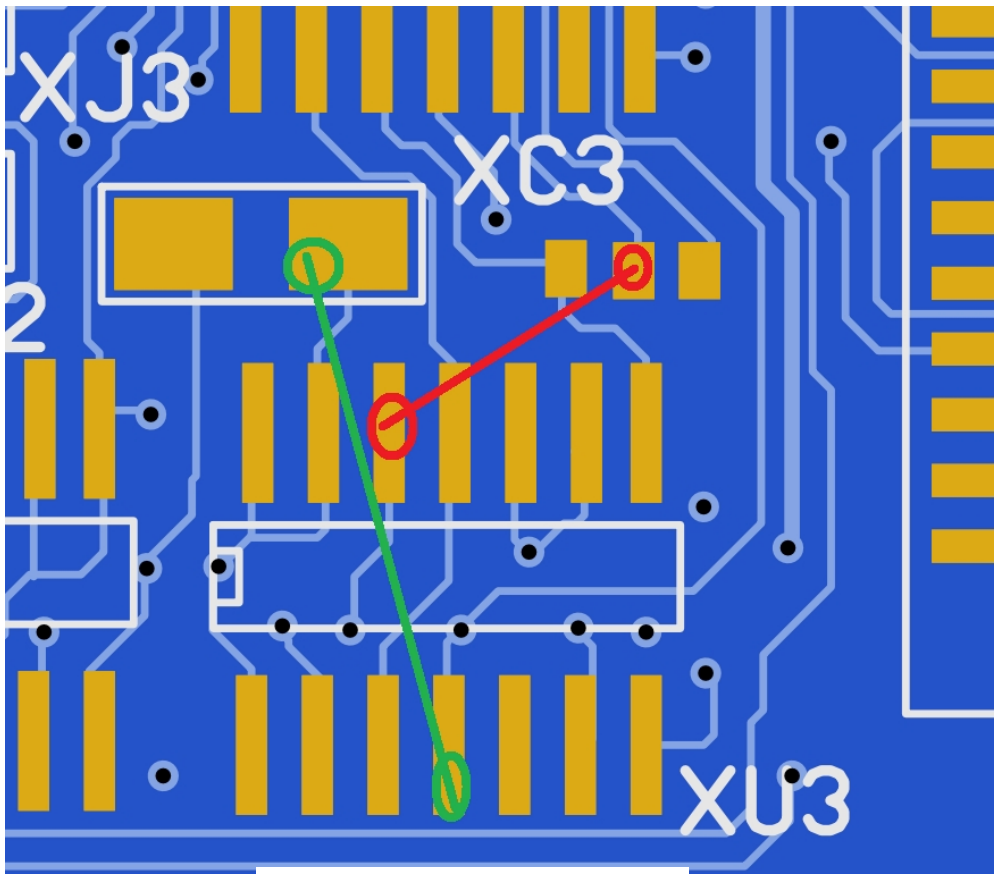
SOME solutions need a wire between the 2 red-marked places. this is for the budgie. And some needs a 470Ohm resistor between the 2 green slots. or you will not get any picture.

Budgiepatch

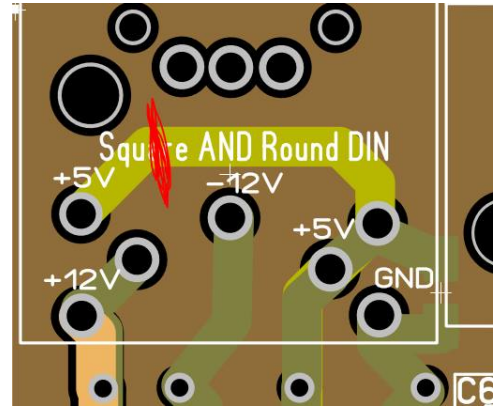
IMPORTANT UPDATE

If you have the Rev 1.0 board. there are 2 faults:

First the BIG one! as I added a possibility of having 2 +5V lines via the DIN connector.. I have noticed that when putting in an



Budgiepatch



rev10fault.jpg

should ACTUALLY be connected to RGB port (23pin) pin 15. no idea why this fuckup was. Corrected here.. so earlier versions of board and if you want composite/svideo in NTSC middle pad of R62 should be connected to RGB Pin 15 instead of a jumper. PAL is not affected.

A500 PSU you will have a short to ground.. As my lab-PSU does not (apparently) have the shield connection connected.. I never noticed this. but with a properly built adapter or a real psu.. it is connected. and. yes I am stupid. connected that pin to the din connector..

rev10fault so using a square connector. cut on the top side of the board as pictured.

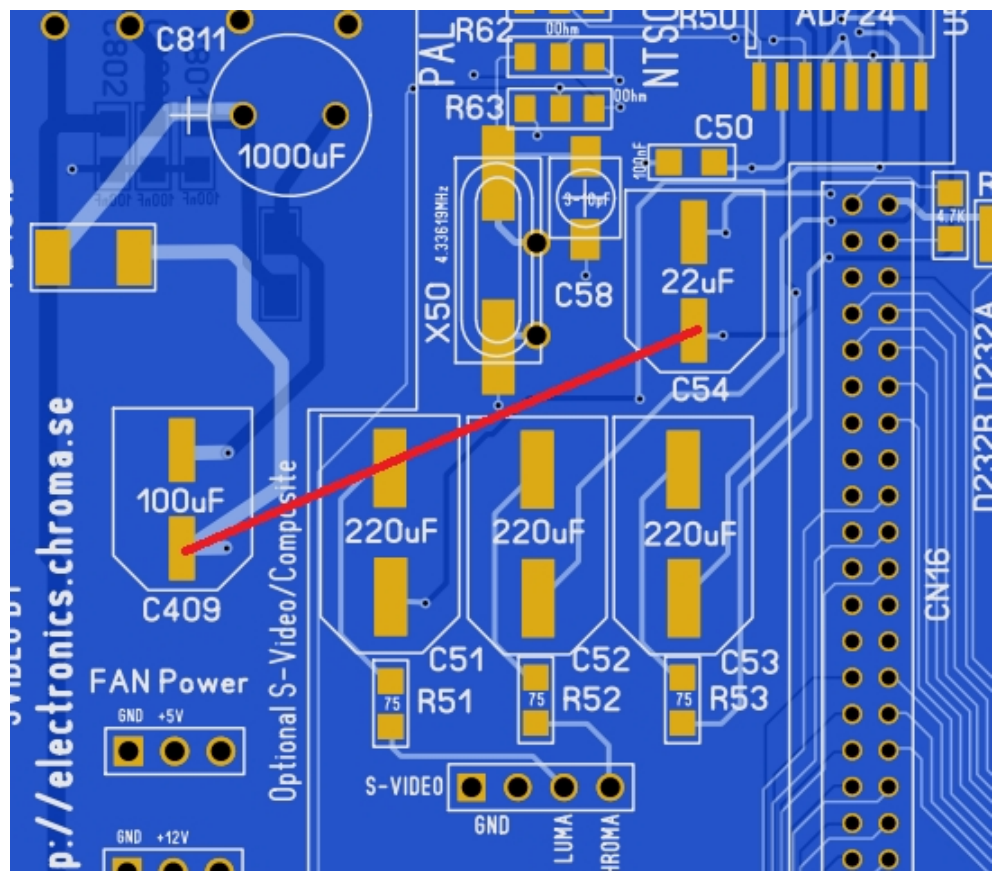
2nd thing. I moved C409 after doing my R1200 prototype sown so you could use the TH 4.3MHz oscillator.. this made that the videopart will not have +5V, so you need a jumperwire from PLUS from that cap to the plus of C54 and that will work.

rev10fault2

Rev 1.2: At composite 0ohm jumpers. R62 NTSC Location was connected to ground and

IF using a VideoDAC that requires a Zener diode, I have

rev10fault2.jpg



now connected the R215 Correctly (was wrong on older versions not connected to +5V. so you must put a 1K resistor here if that DAC is used. on older rev. you need to connect the 1K resistor on RIGHT pad of C215 and to +5V (like top pin of D233A)

Added Kickstart switch functionality, if you are using 27C800 proms. you can program one bank with one kickstart and the other bank with another. if R6A (bottom side of board) is set to ENA. the jumper can select the active bank. High/low with moving a jumper or a switch. (or a pic controller of your choice) if R6A is set to DIS, the A18 signal is handled as on any Amiga. To make some kind of PIC for this controlled by joystick fire or mouse left. FIR0 and FIR1 have been equipped with a TH hole for soldering a wire there.

On older rev. you needed to do a slight solderblob at the pads close to U10 (between it and the FPU location). This is now a trace. Trace is visible so if you need another "strange" budgie configuration, just cut that trace and do your stuff.

Wellll, enough of the old 1200. Lets check the ReAmiga files:

IMPORTANT! THERE IS AN UPDATED GERBER WITH FAULTS ABOVE FIXED!

<http://www.hertell.nu/webfiles/ReAmiga1200Rev12.zip>

Analysis Results
layers: 4
minimum trace width: 5.9mil
minimum trace spacing: 5.14mil
minimum drill size: 0.3mm
width: 354.9mm
height: 182.18mm
thickness: 1.6mm
So basically 5/5 Mil tolerance and 0.3mm drillings

for the R1200 there is a BOM file as txt and excel, for the clone you are on your alone.

If you need help where to solder the different components you can use the tool my friend TSB did:

<http://www.hertell.nu/locator/locator.php?project=r1200>

locator FOR now will be missing the 00hm resistor to set Kickstartswitch setting, located bottom side of board under kickstartswitch jumperholes.

Where to get chipsets? well no idea! My reason to do this is to make old dead machines live again. my experience is that most faults on 1200s isnâ€™t the chipset but corroded PCBs and shorted ceramic caps etc. so put in all new passives. move the chipset and logic and connectors and VOILA!

And here is a youtube link of me testing this some hours ago:
<https://www.youtube.com/watch?v=PlxLs2KYNKw>

You CAN buy PCBs from me, contact me for information. atleast the 2 first batches I will give 5 euro per sold PCB to the Swedish children cancer fund:

<https://www.barncancerfonden.se>

*Original text:
John Hertell*

The logo for Amiga.Zone is a dark blue vertical rectangle. Inside the rectangle, the text "amiga.zone" is written in a white, lowercase, sans-serif font, oriented vertically from bottom to top.

BROAD|NET

<http://broadnet.no/>

The logo consists of a solid blue square with rounded corners. Inside the square, the word "LINDBAK" is written in a white, bold, sans-serif typeface. The letters are evenly spaced and centered horizontally within the square.

LINDBAK

<http://lindbak.no/>

And the story goes on ...