



Iceni Newsletter May 2026

If you wish to join us just follow the link or paste into your browser:-

<https://meet.jit.si/IceniComputerClubMeeting>

and follow instructions to allow camera and microphone access. There is nothing to download or install. We still meet on the third Wednesday of the month at 7:30 p.m. via Jitsi.org Video Conferencing.

AGM

Our Next Meeting Wednesday 20th May 2026

Iceni Computer Club AGM (held online with Jitsi as usual.)

8:30 p.m.

AGENDA

1. Apologies for Absence.
2. Minutes of the last Meeting
3. Matters Arising.
4. Chairman's Report
5. Treasurer's Report
6. Election of Officers and Committee.
7. AOB.

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After the AGM which is usually short. Gareth has agreed to present the latest Ubuntu release 26.4 “ResoluteRacoon” after which we should define a few more months of the programme.

## **Our Last Meeting Wednesday April 15<sup>th</sup> 2026**

### **The Minisforum Computer – Gareth**

Gareth said he was a little unprepared because he had not had much time to use the computer but can talk a little bit about the machine and hopefully then demonstrate it a little bit later on. The experience when you boot it up and get a desktop is very much the image that they ship with it. At the moment that's really the only way because like all things in the ARM ecosystem with Linux they ship an image with a kernel with all the patches from the various chip vendors that aren't in the mainline Linux kernel to make it work. Until more of that makes it upstream, you either need to build kernels yourself with a load of patches or just use what they give you. Gareth will also talk about probably a bit later on and the reason why you might not want to just use the image it comes with. But he thought he could start by going and disconnecting it on his desk so he can actually show us what it looks like. So we'll do that first.

### **What does it look like?**

He needed to pull Paradafter out and pull all his leads out and get the network cable out, which is a bit tricky because he can't press the tab fully. So when you're trying to work out how big one of these things are before you decide to invest in it and you don't really bother checking the measurements. You think “well that looks like a little a little small form factor PC”. Intel brought out what they called “the look” ,which is a little x86 computer about

this kind of size. This is the slightly taller one with a little bit more stuff in it. You could get a smaller one. You can get a smaller one and Intel sold lots of them with everything from little Celeron processors up to Core i7s and i9s and things. They stopped that recently as a lot of the other vendors like ASA made their equivalents of them because it became quite a popular little form factor and in fact the the computer he is running Jitsi on tonight is an old little nook from about six years ago. So if you quite like the little mini desktops about the size of a Mac Mini or something. It is actually that big so this is the minis for box and it's a little bit more like you can get the age elite desk and things like that, you know small form factor PC versus very very mini mini things.

### **The hardware and connectivity**

He thought when he gets to the text specs page you'll be able to see what the dimensions are. It's probably two hundred by two hundred by seven or eight, seventy eighty, something like that. The front has a phone jack, power button some USB ports and you might try to send it to the camera. Some more USB HDMI, USB A, USB 3, two copper network ports which are both tech Gigabyte and very interesting for kind of Arm machines of at least of this form back and a real PCI slot. So you can actually put graphics cards and things like that in it, which is one of the things he'll get to later. So it is pretty good on Connectivity.

It's got a twelve core processor. So it is at least in the ARM ecosystem, but now more in Intel and things as well, you get this idea of performance cores and efficiency cores kind of Intel and Apple call them, but arm call called it “big little” where you have some big powerful cores; very useful in the mobile phone world, but you know, you're trying to play video or you've got the web browser doing complicated things you need for performance. It can be checking your email in the background and beeping occasionally when you get a text message, but you

can turn all of those off and use some much slower, lower power calls. So it's slowly made its way into the desktop world. or via the laptop world. Because again, if you're using a laptop, if you're not requiring a lot of computational power, some slower core use a lot of power and extend your battery life. So this is kind of where it came from. The 12 cores is in this are three sets of four and that they're kind of terming it “big medium little” so the big cores and the medium cores are the same kind of ARM core generation whatever you know cortex a whatever they are. We'll have to go look them up but different clock speeds and then the little ones are the more basic actual actual CPU cores. It's got 64 GB, which is not Apple style, you know, built-in processor. It is discrete RAM on board. It's got a one TB NVME drive in it; which obviously you can upgrade but he hadn't got the box handy because it's been packed away but depending on whether you want things like that PCIe slot or not, it comes with little adapters to make a second driveway for another NVME or for a kind of a two and a half inch factor SATA SSD and things like that. If you want to use the space inside; that could be used for an expansion pool. So, it's the geek in Gareth more than anything that maybe might take a look at it, but he was always on the lookout for because he had three or four old PCs in the rack with the door shut behind me from when he's doing like lab stuff for work and that kind of thing. and He wondered if there's a lower power option ;and you know the ARM market looks for that. Because you've got Apple making their silly, silly, silly powerful processors, but you're stuck with MacOS. which is not that great for running a server and that kind of thing. On the other hand, you've got Raspberry Pis and things, you know.

## **Future ARM hardware**

For many years there's been the the promise of a lot of hard ARM hardware to fit all these applications and it it's never seemed to materialise.; which is a bit annoying because it it

would be really good at it. So he wondered what to do now; he was originally saying “I'm gonna get a Raspberry Pi and I'm gonna get one of those nice cases you can get these days and put some real drives in it and put the RAM and all the rest of it. So in that context this looks really quite interesting. The other thing is it runs a BIOS like servers these days it runs it UEFI to boots like a modern PC does. Which means if this was a big ARM server like we use at work, you could stick a standard Ubuntu installer in and run it pretty much the same and it would all work.

However, the CPU in this is from ARM China, which leads you down a path. And also it's got an arm GPU, you know, an ARM graphics chip in it, which is probably well supported with Android and things like that, but the the desktop Linux world, despite Android being based on Linux usually struggles with things like ; proprietary graphics chips; so this comes with an image from Minisforum it's a Debian 12 image everything works in that the CPU and everything on the socworks including access to the AI engine on it. It's got full graphics acceleration with 3D, it's got media encoding, all of that works, but none of it is in the mainline kernel, none of it's in the standard kind of of kind of desktop environment and the MESA stuff that runs the graphics acceleration these days on Linux yet so at the moment you've got the promise that you can install any installer for any ARM Linux distribution, or in theory Windows, of course, Windows ARM, and install it, but you're going to be missing drivers for a lot of things so some of the online reviews they've tried Ubuntu. Ubuntu basically works ,but with no graphics support, so you get a text console and that's basically it, but then the system works. Graphics support. The guy who did that review, because it has an expansion slot in it, put an NVIDIA in . To find the smallest NVIDIA graphics card that will fit in a single height slot that would fit in a chassis that's only this big . and reran the Ubuntu installer and of course it

detected the distributed graphics card as well, everything booted up and it works. So at the moment if you want graphics to work properly and you don't want to run their Debian image they give you you have to actually use the expansion slot to put a graphics card in which is a little bit annoying. However if you just want to run it as a server which is probably what Gareth bought it for or you don't really care if the if the display works or not. So he would quite happily put Ubuntu Server on it with no desk at all, which maybe is what he would do. We we shall see. So far he has only booted it up two or three times for about half an hour to have a really quick play around. So tonight will be by far the longest runtime out of it yet, probably. So he hoped he could share screen and record at the same time, he didn't know if that was going to work. Sharing entire screen because in his experience anything else just kills the computer.

### **Minisforum's Website**

Looking at their website. Okay, so Minisforum's website isn't great in actual fact. They make zillions of different kinds of machines with this form factor, they're mostly Intel Core processor ones or AMD Ryzen ones, as you can see. That'll kind of iterate around a lot of the models they make three quite nice looking machines from kind of lowish end up to very up high end and in particular they make NAS here that you can just install your own operating system on. They make these beefier ones that have got more expansion slots or more AI capacity if you want to put GPUs in. They really, really do make lots and lots and lots of stuff. And a lot of the people at Canonical seem to use them for you know for home labs and that kind of thing because you can easily get two or three of these quite small machines and make a cluster for some stuff we run. They range from two hundred pounds up to thousands. It's all Chinese obviously, but they have a UK warehouse, stuff comes reasonably quickly. For core i core ultra9 machines for these kinds of prices you do get quite a lot of really quite a lot of

machine for your money. For example I know a core i9 for 300 quid these are bare bones prices. But you should know there is no RAM or anything else you usually found on the site. But yes, they then added, I don't click that link up there really quickly. A while back they they then added this for the site, but with no information at all on how to buy it or when it could be available or really even what was in it so you know it was vapourware for quite a long time and then and all of a sudden you know earlier this year at the beginning of the year they they became available and they were on offer a you know I got it for less than these prices is when it first came out they were they were really trying to push it. I mean as a bit of a well not a bargain if you want to try it out but I thought you know well "I'll take play with that." Mine I don't I don't think mine came from Hong Kong either it came from at least the EU site of theirs. But the prices include if they ship them from Hong Kong, the prices are delivered to your door. They include duty if it goes noticed and charged according to them we shall say but my mine had correct import paperwork on it and wasn't the usual thing where they tried hide it as a gift and it turned up with no charges to me. So they claim they'll pay all of the shipping and duty costs. But here here it kind of is. The top of this page is just, you know, if you're looking at the specs or kind of purchasing, it's got a few more of the pictures, but you know, I've kind of showed the real thing. But if you carry on scrolling down, you kind of get to the the the blur if you like eventually so they claim it's the world's first mini arm workstation UEFI boots. I can probably believe that, you know, most of the small ARM devices are still using things like U-Boots and stuff like that. Although I think on the Raspberry Pi, the latest Raspberry Pis, there is there is a UEFI implementation that you can flash and use. It had some limitations six months or so ago, but they were working on it so that the Raspberry Pi essentially would become, with a BIOS with UEFI looks like a generic PC almost albeit with an ARM processor.

## Servers

This is how the servers are these days, you know, you buy a big Rack mount a hundred and ninety-two core ARM server. it's it you power it on, it does its self-checks, it has a BIOS, it boots the same as any other any other PC really. But so , here we kind of go. It's got a 64 GB of RAM, and dual 10 GB NICs they are real tech so they're not high end but they're there. It has this expansion slot you know you do have to fit within the limitations what will physically fit in the chassis when you can find a reasonable decent NVIDIA graphics cards and things that were actually fitted in there. So it claims it's got this CIX CP8180 CPU. CIX are a Chinese chip manufacturer, but they seem to be very much aiming for this space of, you know affordable , but you know real kind of performance if you like. He thought some other devices were intended for NAS device applications. The reviews of it are a little bit mixed in terms of of performance he thought generally it's somewhere between a Raspberry Pi and an Apple M1 but obviously you know an M1 isn't a new chip, it's like five plus years old now, but it's the first real thing in that space. There are some Raspberry PI models that use the same chip so this is trying to put it into a desktop kind of case and a be a bit more productionised. But you can buy one of the smaller board cheaper that's got the same CPU on it. When it says here max dual dual fix you know storage slots. One's on the other is if you use this adapter drive got in the box. If you want to use the second one you have to take the Wi-Fi card out though because it uses the same expansion slot on the internal kind of control heat slot. And then there is also another one where you put a real size drive into the expansion in here. The PCI cut. But interestingly, and we'll touch on this a little bit, they claim it supports Proxmox as well. Proxmox is quite a popular kind of virtualisation stack for ECs. You can run it on one PC, you can make a cluster. It's based on Debian, but it has a web interface, so you know you install it on a device and then manage it and deploy containers or virtual machines to it from that. But it's

never supported ARM as such. There was an unofficial port of it to ARMs a couple of years ago. And it looks like what they've done here is they've basically taken that work and just Gareth hasn't tried that yet, but that may be what he chooses to do with it. He doesn't need the graphics stack working if he's just purely running it to the VMs and for what he use it for that might be or what he intends to use it for that might be exactly the way to go. It's not hugely high powered, but then if it's Sub you know Apple M1 performance, 28 watts is also quite a lot of power. So some of the reviews said as well that the chip actually at idling draws more power than you would expect. It's probably 15 watts is idle, whereas you know a lot of a lot of a lot of CPUs can go a lot lower than that, but they acknowledge that you know they're working on fifteen for it, you know, there'll be a firmware update at some point they say. Some of it is apparently to do with the three sets of cores you know and how "Big Medium" and "Little" is actually quite rare in the limits world, in general it is in some ways related to the fact that to get the system stable they choose to run it at slightly higher power. But we shall see how it goes and again because it's got KVM support. You know they claim obviously you can do virtual and you can run Proxmox for virtualisation labs. You could run things like Android VMs on it. They've got things like you know it runs Ubuntu here, but of course it's still got driver limitations yet doing that. But CIX are working to to mainline the code for there for their chip. So you know hopefully give it six months maybe you will just be able to download the ARM copy of SUSE or CentOS or Ubuntu and install it. But again they make the fac make a point of the fact it's true UEFI BIOS, it works just like a normal PC not like an embedded system if you like. We'll be able to see a little bit of that. Gareth has the one that comes with the one TB NVM for them. He hasn't actually checked what brand it is. We can have a look at that later on probably. He said it's got dual copper 10 GB network interfaces, it's got Wi-Fi 6E and Bluetooth 5.

All of that's working in their Debian image Gareth don't know whether the Wi-Fi and Bluetooth is working in other other distributions I would probably say not given it's you know all on chip. But we shall see. He showed the inside view.

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Gareth said he thought they made quite a nice job of the cooling. You know a lot of these chips can be put in a laptop with no fan. But they thermal throttle if you try and do too much. Even with my Apple like my old M1 MacBookAir laptop, the passively cooled air does notice that we throttle still even though it's quite a cool running chip. If you just throw a load of video encoding or something at it, it doesn't do it's just in general use. But in this because they're trying to make a form factor suitable for running you know virtual machines and that kind of stuff. They do look to have made quite a nice job of ducting the air and putting a good fan in there. The reviews have all said if you provide a V graphics card in, it does say cool and the fans are quite quiet. It when I start this one up I can't hear any noise at all. So that for something early in its life seems quite promising. You don't get anything really in the box other than the system itself and sort of the little adapters to go inside if you want to put a second drive in and that kind of thing. But there's no real documentation if you like other than this this particular report so all of their docs for their various systems are just on GitHub essentially in code hosting and this is the one for the kind of system. You can see they've got some guides on the hardware, smooth on the hardware, the firmware, that kind of thing. We'll we'll take a look through some of this. They've got a “ how to reinstall the OS” which is how to get their copy of Debian and

get it back onto the system. They've got “how to put their version of Proxmox on” if you want. They've got various things, “how to run Android on it” if you want. Containerized Android because one of the things that a lot of these things I think are are potentially useful for is if you're doing Android testing more than development because instead of having to plug into a real Android phone tablet you can virtualize any copies of them. They've got a link here for “how to use Jelly pin” which is like a video media server. I mean I actually use Plex at home but Jellypin is one of the other kind of popular ones and they've got a build of that which actually can use the hardware video transcoders And again, we were talking about how it uses quite a lot of power at idle and it's got a link here for optimising it.

## **Using Debian and provenance**

This is essentially the base stuff just almost goes through that as well. So you'll see as is typical for vendor generic images it's not like you install Ubuntu or Debian to choose your username and your password and... what region you're in and what language and what people would lay out etc. you want to know how you want the disc partition as you go through the installer, they literally just give you an image to write direct to the drive or it ships with it if you wanted to read it install it; you write direct to the drive, which is basically they've installed Debian and then just given everybody a copy of it if you like. So it does generate some some new SSH keys and things. So it's at least unique to you, but like you are trusting a Chinese company who have made a Debian image and sent it to you; if you like that it's, you know, not got any trap doors in it and that it's not running anything dodgy etc. etc. which is one of the things I'll touch on. Gareth

says he is willing to play around on this, but not willing to actually use it for anything unless I built an image myself or installed the operating system vendor's official image if you like; but it's interesting to see what works and that kind of thing. And in the past, you know in the earlier days things like RaspberryPi and a lot of the time if you weren't running Raspberry and you know if you put Ubuntu on it for things like that back in the day, canonical people did the same thing, you know, the Raspberry Pi images, the early ones, were just Ubuntu Ubuntu instead of mini as mini like it is here, but you know, I would trust Canonical's generic image more than I would trust minis for 's generic image, shall we say So I'm not saying it's dodgy, but the provenance of it isn't is improved to me if you like. So but , so here's kind of documentation you can get. It's also that good old Chinese thing. If you want to reinstall the Debian image, go and download it from Google Drive. And here's the link to Google. Google Drive, you know, it's the provenance that is a little bit lacking, shall we say. And that is the official system image from Google Drive. But Google Drive, you know is one of the things that a lot of people use inside and outside. China I guess it gets it round the great firewall for them. So maybe it's alright. But yes, you essentially download it, just DD it or use.

## **Writing images**

If on Linux you can DD it, on Windows or Mac or whatever you have you could use a program to write it with Ballin or Etch one they recommend here is what I use on the Mac for like writing Ubuntu images and things as well. So they've got their information if you want to install Proxmox to tell us Into a virtualisation system. They don't actually give you a pre-built

Proxmox full-out operating system image to copy to your disk. They just essentially give you a extra sent an extra Debian package repository to add to then go and install Proxbox and again, it's this community one. Gareth said that some guy ported prompt box to ARM and you just install that, and then install the packages. Then set networking up the way it wants it set, to have kind of a bridge that the ends kind of run on then literally go and install Proxbox VE to install the the environment. Gareth hasn't tried it yet but you know in some ways he'd be interested in a more generic image he built himself even if graphics stack doesn't work and then install Duxbox on top of it. As you can see, it's kind of really, really basic implementation.

## **Performance and Cores**

It's got some interesting things here, like if you want to optimise the performance of the system, turn the smallest cores off. I think that is largely because of course although the schedulers on Linux have grown to understand you know performance and efficiency or big, little, they perhaps don't understand the the increasing levels hierarchy quite so well and the slow cores on this chip he thinks are really quite slow. So if you don't see it performing or you know you think things should be a lot quicker on the system than perhaps they are, they just actually recommend you go into the BIOS and you turn off. cores two, three, four, and five, which are actually the slowest of them. So it would then essentially to your operating system become an eight core CPU. they would all be faster if you like. So interesting things like that. Maybe we didn't know but he understood that NVIDIA, in the not too distant past NVIDIA have brought out kind of an AI workstation which had a very similar form factor

to this but they start at over 3000 pounds but they had very very fast, like 100GHz plus networking .They've got 128 GB. They've got an NVIDIA kind of AI graphics and GPU on them with a hundred and something RAM itself, very much for AI developers and things like that. But it also has an R CPU and it also has this kind of three sets of different cores architecture and apparently runs into some of the same kind of issues. So the fact that the Linux kernel will get fixed to support a really expensive NVIDIA AI workstation will probably fix this issue on the on the cheaper ones as well. I don't know whether we can actually find out a little bit more on what cores they actually are in this. So I guess the other thing here is we could is if it's ARM V9 so it's the latest ARM architecture. I know reasonably modern Android phones and iPhones and things will. But a lot of a lot of the things we use and even a lot of our servers that work still that are building Ubuntu for our things are still V8 or eight point whatever it is so ARM v9 is not; it's not like it came out yesterday; you've been able to buy hardware for a while but it's the latest instruction set if you like, and again it shows you it's got this Immortalis G720 which is actually its GPU and its graphics chip, which you can find it in Android tablets and things. It's ARM don't make desktop grade graphic stitch if you like. It's all aimed at Android phones, Android tablets probably are Chromebooks and things like that so but let's see if I can find out a little bit more about which generations of cores it's actually got That might tell us. Oh, that didn't actually zoom in. Let me try and zoom it. Okay, so it's the ARM 9. 2 instruction set. The big and medium cores are Cortex A7 of different clock speeds and the middle cores low power up Cortex A520s. So I think in the past I've seen things like their A56 and A73s and things like

that. They were the armed VH cores. So I would imagine you know most of the Raspberry Pi s means we've are still on the V8, but you know the next iteration of them will be V9 if they're not yet there. So it's made on six nanometer process so we're down to three I think now; we are really really modern kind of Apple and Samsung chips probably but six isn't too bad; it's probably the same as Intel is using so that's probably what I've got in terms of slideware. {Ed. Whats that?} MSR1.

## **Reviewers**

If I can, I'm trying to find this guy here, Jeff Gearley, he he reviews lots and lots of stuff you know not just in the Linux space but reduce you know PC stuff lots of Apple stuff and Android as well as Apple and iOS, but servers as well as desktops but interesting here obviously he got a he got a freebie I think but this is kind of his review of it. So that was it, it's the six from this other Chinese company, Rad Sang.

The Radzka. That's another board that uses this CPU. And again they also have 1264 GHz RAM, but that starts at a lot cheaper. They also claim it's fully system ready ARM system ready with a BIOS but of course it's got it's got the exactly the same hardware on board so it will have the same limitations of Ubuntu and think of whether Ubuntu works or whether you know other district other sous as ARM distribution works at the moment and that kind of thing. but that's his review of that. So it's the same CPU as that, but putting it to kind of a more desktop conventional small form factor VC form factor. But again, he shows it here. So you can see this on the right hand side is the cooling for the chip sets on the board itself. This is it when he's put a a graphics card in it. so he has to do that with all of

all of that. you can see his reviews of the inside of I think you like. He talks a little bit more about CPU and doing performance testing on it. So you can kind of see the benchmarks there.

You've got the high five down towards the bottom end of the four You've got sorry Apple's M1 in a mini towards the top end of what they kind of looked at. You've got the Windows Dev Kit there as well. The Windows Dev Kit was a cork on

Snapdragon I think so that's what they were doing as the developer kit that went onto things to like Windows ARM laptops you can buy now. So you can kind of see it's it's kind of slightly faster than you know what was going into ARM

Windows laptops a year about a year ago. But you can see there that it's got quite high multi-core performance compared to a Raspberry Pi but it's you know it's single core performance isn't hugely up there. It's benefiting from having lots more cores more than the actual cores themselves being a lot quicker by the words.

So you know he was a bit underwhelmed, I think, that is you know performance is still well under a four-year controlled M1 when this is actually a modern take at other vendors doing a desktop; a desktop rather than a server class processor. But you know it's their first attempt at it. They can only get faster.

Okay, probably more performance testing power draw as you can see pretty terrible idle idle power draw as opposed to underload it's for pulling 17 watts that little Orion 06 like developer board was pulling 14.2 and it's all the system on a chip not idling properly, you know, so a Mac Mini idles and four watts and Pi at 2.8, a little orange pie at one. The belief and CIX, have actually said as much, is they're running the chip at high power even as idle at the moment for stability and they hope to iron out stability issue and then idle load would go much

much lower. You hope that they find they can do that in firmware in a BIOS update or whatever and it's not that they find a fault in their hardware design. Think of Intel and their problems doing maths and things that they've come across over the years. This one has a stability if they lower the power draw too far. So at the moment you say "I'm gonna buy ARM because it's low power at home, but I've got a Mac Mini up there." And while that's annoying because MacOS isn't a server operating system, it's running a lot less power when it's not doing anything. So I've been kind of waiting to see if they fix this before I use it too much, but you know we should we shall see But , he he as I say he tried just running Ubuntu instead of their custom Debian image and look you know it's unsurprising that the graphics chip didn't work with a little bit of effort you could probably get the kind of Linux frame buffer driver to do something so you can at least get an unaccelerated desktop to be able to install it. He just said it dropped to a console and he didn't get a GUI at all. But that's still perfectly good enough to install a server operator. system. But he wanted to get a desktop, so he found this above top RTX A thousand which is a Chinese manufacturer again. You find it on kind of Alibaba and these places to buy dodgy Chinese tech online. But it basically takes a laptop class NVIDIA graphics chip which they don't sell as a PCI card to go in a desktop and they put it on a VCI card and of course it fits and there are drivers for it so it works. So you know he put that in there. This is an example of going into the BIOS. So as you can see, it looks like a typical PC BIOS, with the horrible text mode BIOS we've all seen on PCs. since the 80s you know but as you say he switched to Ubuntu and Ubuntu detected during the installation that there was an NVIDIA chip and

installed drivers and basically everything just worked. So his review is a little bit mixed, you know. The rest of their computers they make their Intel and their AFD ones are you know out of the box really really good reasonably cheap or cheaper end small form factor PCs. This one is a work in progress. They've made a really really solid piece of hardware but the chip they're using is very poor and you know delving into the ARM ecosystem, and using a CA GPU that doesn't yet have generic Linux support things in it kind of holds it back a little bit at the moment it's good for people like me that want to tinker around on it it's not good for somebody who actually just wants to buy a 8 Linux desktop and use it .

## **Demonstration**

So that's kind of what I had in terms of presentation, what we could go and do if I stop sharing my screen is go and try and plug it in and see if we can make it work. What I've done, I think I talked about it a little bit in a meeting quite some time ago but I've got a little GLI net kind of network KVM what I usually use it for is I've got my work laptop in a bracket underneath my desk hidden out of the way. Oops, let me zoom back into myself if I can. I've got my laptop hidden under the desk then with this little KVM plugged into it and then I just access it in a web browser kind of thing I'm running quite quite useful. Let me turn that off so it doesn't track me. But I'm gonna plug this into that so we can share share the desktop of it just in the web browser here, hopefully. Did you see the little notice on the screen that said turn the recording off in order to save it I didn't, but oh yes, stop it if you want to save it, yes. stop it before exiting the meeting.

## **Jitsi**

The problem you have is if the recording crashes as it you usually does you don't get the sound you don't get the download either so it it's it's it's one of those things that if we wonder do we just with Jitsi, which we did because Steve liked it because it's open source, but it's also a little bit annoying when we have issues with it You know.

## **Demo**

So the power light has come on. So as you can see. You know it comes on and looks very much like a real computer; press escape if you want the BIOS or choose what device you're going to boot from and then if it's Debian 12 so this is the Debian 12 bookworm, I think, desktop. I find it you bring it into Debian every time a little bit difficult for me because you know Ubuntu went back to GNOME from from Unity, their own desktop, but they made it look like Ubuntu are always looked at when I get generic GNOME, GNOME, however you pronounce it, I'm always like, I can't find anything. So yes, this is this is the out-of-the-box experience on the Minisforum. If we open a terminal; I don't remember how to make the terminal. There we go. No, that was that's not the terminal on this, that's the terminal on there. That was the terminal on my actual desktop machine. So hang on. Let's just go and type terminal. There we go, I want a terminal. we could make that full green, couldn't we? We could make it bigger so you know we've got oh I didn't side up very well. So as you can see, so it's ARC64 as we expect,

it's you know it's ARM, it's kernel 6.6 and not 6.9 build  
generics I mean it's their kernel there's quite a lot of patches  
against it shall we say if we do Debian version is Debian 12.3.  
What else can we do? Crop oops C the U info. So, processor  
zero, so new. See if we're detecting eight core twelve cores, it  
doesn't give you much information to be able to detect which are  
big and which are little. I don't think there although CPU part  
eighty one and CPU part eighty maybe maybe some giveaways  
of different classes of CPU in there. I don't know CPU part D81.  
So, , D81, D80 that that might be how we see the A720 fast  
cores and the A5 whatever they were slower cores but there's  
nothing easy there that tells me what's a big core and what's a  
medium core media of course. If we do if we do top, gonna  
see what's break. we've got twelve cores. If we have a look at  
them all it's all running nice and idle. I don't know what else we  
want to look at if we can do LSPCI, see what PCI stuff we have  
detected. So you can kind of see that you know a lot of it's  
coming from the actual system on a chip, the CIX lines, the The  
Ethernet ports are both real tech RTL827s which are the 10  
GHz ports. It's a Media Tech PCI Express wireless adapter so  
the wireless and the Bluetooth is in the deck. And the memory  
is Kingston. So the way you can see what what actual memory  
chipsets you've got, memory chips you've got, but , they're next.  
What else can we say? Top. Maybe we'll see you do it. So we  
have got an MA the password is Mini as it said on that wiki  
page. so , and it's it's it's a Kingston SSD. essentially. So  
although you know never quite know what you're what you're  
getting, it does look at least like you're getting a a reasonable  
quality drive and things in it although of course you can't you  
can't switch it out yourself. so kinda that's that's kind of

Quick look around at the terminal. Obviously it comes with left it with with I always forget because Debian and Calapit fight with Mozilla over you know licensing and the name of of Firefox and Thunderbird, didn't they? So I haven't used Debian for ages, but , they their version of Firefox is called something else, isn't it? is that Ice weasel or is that their version of Thunderbird? I can't remember. they've got Chromium on here, so they do oops they do ship it with if i type oh this we saw is Firefox Well that's interesting. it wants to access the key ring, but it's not the password I think it is, so that's that's interesting. but we have chromic here, so We've got a a browser. there was something I thought I'd go and try and Google for. I've lost my train thought for what it was. We can try and go to a website and see what the performance of that is like bearing in mind we're we're going over a cheat KVM here which is encoding the video as well. to send it but it's it's a very responsive system. No real lag. whoops that's that's trying to open you know no real no real lag at all if we go out of out of full screen and run top again here you know it's Oh yes I can. Oh well. Thank you. We need a browser off the other side. Yes we can, thank you. But you know it's all nice and responsive and I'm guessing that's Firefox using you know 60% of a core or whatever, but that's that's that's probably the same on on most things these days. the system staying 92% idle running this than it all it's all very very responsive I don't know whether we can get probably still getting over here. That's actual again the there's no jerkiness I can perceive here, but that's even . it's not it's not like I'm watching it directly plugged into the HDMI port, I'm to get the thing encoded for KVM as well. So it's That's you know pretty pretty good quality and you

know doesn't doesn't really seem to break the sweat. So I think if they could if they could actually either main lines to for to rip a button to would accept some of the patches for you know in Debian accept some of the patches for it into their kernels it could actually be really quite useful out of the box with the generic installer quite quickly. Ah, that's what I was going to put. . There is a project kernel for six. There is a project that I can't remember the name of it. something Linux and Linux. Anybody remember what the O-Droid was that was the equivalent of it. Let's just try that. Can't find it now because I wanted to find it. There's there's an actual project out there that I found the other day with a GitHub repo and like a build file where to make it easier to run your chosen distribution sooner. They were essentially building a kernel and a patched version of kind of the the desktop you know the graphics libraries and patched versions of popular utilities and applications so that you could have a system where everything was supported. GPU worked and all the networking worked. Have a system where your web browser and things were for using the graphics acceleration, but they were also in their in their package repo they were doing patched versions of of FFM peg and things like that so that the the actual like media transcoders on the on the on the chip could be used for you know video transcoding and things like that but I don't I can't likely remember what it was. it's interesting to see by the looks of it the that Armbia who which is a project that makes you know Debian and Ubuntu images for for a lot of single board computers are are also working on a have an alpha version by the looks of it so I don't know whether we can we can find that if we go to itself. I don't know whether we can whether we can try that or whether that's

not not here yet, but Armion is an interesting project. And it's interesting if they're adding the O-Droid, I'm sure they will add this system as well eventually.

Gareth

## **Iceni2604C**

Orion O six. So yeah, I don't know six. Do they even show it in alpha? No, so I it'd be interested to go back to that for post and see what they said. But I can't remember what the other one was called. I'll have to see if I can find it, but I thought that other idea was quite useful because while I would like to build my own Ubuntu image, I don't mind running a packaged kernel for another project. But it's kind of interesting here if they're if they're if Armion are looking to do a build for the Orion which has exactly the same CP you on it. That will be interesting to try and see if it would work on the system then. So that thread is something I might go and have a read of sometime. But yes, that is kind of the state of play of that. I don't know whether there's anything people want me to try and poke around on it a bit more, if there's anything I can try and make it do if there's anything else it find online. I will have a ghost on the main browser here of trying to find what was it? Oh yeah. try searching for something like that. I can't remember where I found it, but I wish I'd remembered where I found it No, I don't think I'll find it just what I wanted to, but I don't know, is it F1 Linux or something like that? I'm just making things up now trying to find it Sky One Linux, here you go, we found it. So this was something I came across the other day. Sky One is the same, it's the same family. the same the same CPU. It's a project aiming to make the boards usable so it's the project to try and

Yep, upstream and and patch if you like, but they're trying to make it easy to do enablements so they've got their own kernel trees that you can download but have got all of these patches already applied. this one's a little bit different here I think I think the system on a chip has its own Ethernet support in theory which is up to five GB whereas the system I've got here is obviously adding on the main board some dedicated engaging real tech 10 gigawatts [Ed. Is this right?] but if they're enabling everything else on the actual system on a chip like this is here it would get you a long way So yeah, they've got patches against the the LTS kernel tree, against it says next with the 7.0 development here. You know 7.0 will pretty soon be standard if it's not already I think, but having having this gets you a long way. So yes, they've got a lot of things already working. This is everything that's already working if you build their kernel. And they also maintain Firefox, Chromium, FFmpeg, and GStreamer are their own builds of it, which means You get hardware video decoding in Firefox if you install their version of Firefox on your your distro because they they've patched it to use acceleration API but the drivers provide so you know and they can give you information for how to get that so in theory I guess I could install standard Debian. Probably at the moment Debian's easier to try and get a button to on but I could install a standard Debian image and in this kernel and this desktop to get all the acceleration and all the applications and see if I could build my own image that doesn't use anything. from Minisforum and their slightly iffy image show you like if you like that project is something that's really quite interesting. I'm quite interested in seeing if I can if I can build a Debian image built from the Debian repos and then install this, you know, configure the

bootloader and see if I can get it to work. You can poke around things like this which are let me try and zoom out a little bit so I'm a little bit more on the screen. Yeah this is this is showing your processes running on the system so you can have a look down this at the reasonably certain there's no dodgy demons running or anything like that. I had a look down this and this looks pretty legit to me. I don't see anything any obvious signs of anything dodgy, you know, like if there was a really sinister process running that wasn't hidden and was trying to report back things to China or something then you know you'd see it running and this all looks very very standard Debian to me. I don't see anything really concerning. you know you can also do the `dpkg` and see all the packages installed. and again, you know, there are a lot of these Debian packages from CIX which are all related to supporting the stuff on the CPU, you know, so they've basically got all of their drivers that eventually they will probably add to Debian at the moment, you know, not slightly all the custom stuff they've got to make every last bit of the acceleration work That's almost what that Sky One Linux was aiming to do for you, but from a more supportive tree but you look down the rest of it and it all looks very much like pretty standard Debian . desktop to me I don't see I don't see anything dodgy there. But the one thing you take. If we run it out back up, right? Look where we look look this isn't Debian.org or you know ftp.uk. debiandebian.org or whatever configured. This is a Chinese Deviant mirror. So makes a lot of sense. You know, if they're building an image in mainland China they're certainly not going to get good performance to rest of the world's Debian repository. They're using one at a university or whatever, but you

know, out of the box this is set up to basically pull everything from China.

Duncan

Presumably if you did a check on what it was actually connecting to on the internet, you know, look to do full logging on at the router or something you'd find if it was asking sending anything off to China. Thank you.

Gareth

Yes yes absolutely yes, you do some sort of poking there. Oh, that's actually an interesting one. No, that's gonna go to the wrong thing. Unfortunately it depends what what system I'm on. Some of them like an alt tab and the KVM stays in doesn't alt tab within the virtual desktop and on Linux here it it actually does it on my desktop machine not where I'm trying to be but I don't know why it won't let me it doesn't take the password they give you doesn't turn not unlike the keyring so that's kind of interesting but the image they ship you can't access the default key ring for the for the user but you could just blat it away and create a new one it wouldn't be the the end of the world. As you can see of course because they're using Duck DuckGo and Whatever as well, but I wanted to go to I w because I thought I might be talking about button teams as well. I'd forgotten exactly what the topic was. I was looking to see the the OMG Ubuntu site was telling you what was new in 2604 and I didn't really find it but I did come across something really interesting today when I was looking to see if I could find anything. No not the e watering prices at Radzka three GB model. None of that. What I found was a really interesting piece of software that apparently had imported from the Mac, but I can't find it now just because I

want it. Oh no, no. I mean that one's kind of interesting to to to me, but it wasn't what I was looking for.

## **Trying out various ideas**

That Google are finally going to bring the real full version of Chrome to ARM Linux. you know it's existed for ARM Linux for years because Chromebooks are using it but I can't find it I'm gonna kick myself and I can't find this person. It was on the 8th of April. So let's go and see if I can find the 8th of April. Mac OS at Little Switch. Little Switch is now available on Linux. And it is a network monitoring tool to have a poke around on your device in kind of real time where everything is going in your network from from the machines which is quite interesting and you can block things and it will you know dynamically add things and firewall them on the device. So you can add filtering of your connection. and then see in real time everything that's being done. I hadn't heard of it for MacOS if I'm honest, but it looks like something interesting to play around with on Linux as well. Again, if you're if you're saying you know keep an eye on on this and and see what it's doing. So you can do like you use SS and FSTAT on the command line to see what's going on but having a having a graphical view in real time it uses eBPF as it says here so it's eBPF it like orchestrates the kernel so it's a way of like writing code to trap what the kernel's doing and it's used a lot for kind of performance tracing and things like that, but it's actually using it here to see through the kernel what the network stack is doing. I didn't know that. But yes, it's available to download from there. I don't know whether it's packaged or what kind of paper So it does a does a download link. The download link does have an ARM64 dev. So, I mean in theory. I should be

able to do this, right? Ha! Unverified download blocked. Really. Download it anyway. Let's see if we can install it on our system on China. Yes, please. Did that install? I think it's installed. So can I go to find it. No. Can I find it by if I terminal? Yes, I can. Oh we're missing libraries, there's a surprise. Or wrong libc version. Okay, so yeah, that's that's gonna be Annoying. So it's not as easy as we thought. What version are we of Okay, that really was. That's not that's not gonna get what I what I've opted up to do, is it? Glib C Go on. I'm gonna have like end of the minute there somewhere. What what does Debian call the C library these days? Anyway, okay, so it doesn't work out of the box. That's that's that's annoying And again, it's one of the things that you know I am a bit of a long time Linux user, but the reason I disappear off the other desktops from time to time is just so it works out of the box. As it says here, it requires a 6. 12 kernel or new BTX support, so that means Debian 13. We're only on Debian 12 on there their current image so yes okay fair enough it it needs newer newer Debian it was worth a try But yeah, modern systems tend to not have NetStack these days, but this does, so You can kind of see what it's doing. It's going to various places. Is it report-wide? I can't remember. No. Y-W. Black, okay. So no, I don't want to do N. I'll get it right in a minute. Let's see what it's doing at the moment. so mainly it's going to Google by the looks of it, but and Google user content is Google and 1e100 is Google. So there are a couple of other things that don't resolve to anything. It would be interesting to see where they are, what part of the world that is for instance, but Oh, we have the MTR. Let me heck. well, let's install it. Do we get a trace to that? I don't know whether this will have picked up an IPv6 address either. Well we you would think so, there's a

lot of V6 up there well it's only four milliseconds away so I would say that's that's gone very far. that's certainly not recording back to China is it? So, but yes, that's the device.

### **Peter**

I was gonna say, when the Chinese embassy is in central London, it probably won't take very long!

### **Gareth**

Oh yes, that if they build their shiny embassy they could have a big big data centre in the basement and your traffic could be interrupted I imagine they know some of those problems would need to get through the Great Firewall of China.

## **ICENI Future programme**

### **2026**

|              |                                                     |                     |
|--------------|-----------------------------------------------------|---------------------|
| 20 May       | AGM + Ubuntu 26.4<br>“Resolute Racoon”              | All                 |
| 17 June      | Raspberry Pi – discussing<br>the range of machines  | All                 |
| 15 July      | Update on AI                                        | Steve and Sue et al |
| 19 August    | Social Evening TBA                                  | All                 |
| 16 September | Retro systems- FreeDOS                              | All                 |
| 21 October   | Computer Security –<br>Certificates and Secure boot | All                 |
| 18 November  | Photo and Video evening                             | All                 |
| 16 December  | Gadgets and Party evening                           | All                 |

Anyone any ideas in addition to those mentioned below.

Future topics may be Open AI and Pi HAT Radio Transmitter /Receiver Beacon (Licence needed) Peter said it was a bit like WhisperNet which works in the background which a friend of his who is a Radio Amateur uses.

Other topics were Crypto currency – PIN board 2.0 of RISCOS.

The new RISCOS browser; this already had a mention in Duncan and Paul's meeting.

The programme is open to changes as the year unfolds and topics may become more detailed.

MEETINGS WILL NOW BE HELD ONLINE BUT STILL ON THE THIRD WEDNESDAY UNTIL FURTHER NOTICE UNLESS OTHERWISE STATED..

## **Our Website and Email and Jitsi meetings**

Our website URL is

<http://icenicomputerclub.org.uk>

Email to: [iceni@woolridge.org.uk](mailto:iceni@woolridge.org.uk)

The website is where you will find copies of the Newsletter from Previous years and also where you will find our Committee Members and future programme.

I am open to suggestions on what people would like to have included in the website.

## **JITSI Meetings**

I am repeating this here from the top of the document.

If you wish to join us just follow the link or paste into your browser:-

<https://meet.jit.si/IceniComputerClubMeeting> and follow instructions to allow camera and microphone access. We have found some problems with screen sharing on the Mac if using Firefox, but using Safari or Chrome is ok as is using Windows.

There is nothing to download or install. We still meet on the third Wednesday of the month at 7:30 p.m. via Jitsi.org Video conferencing.

End