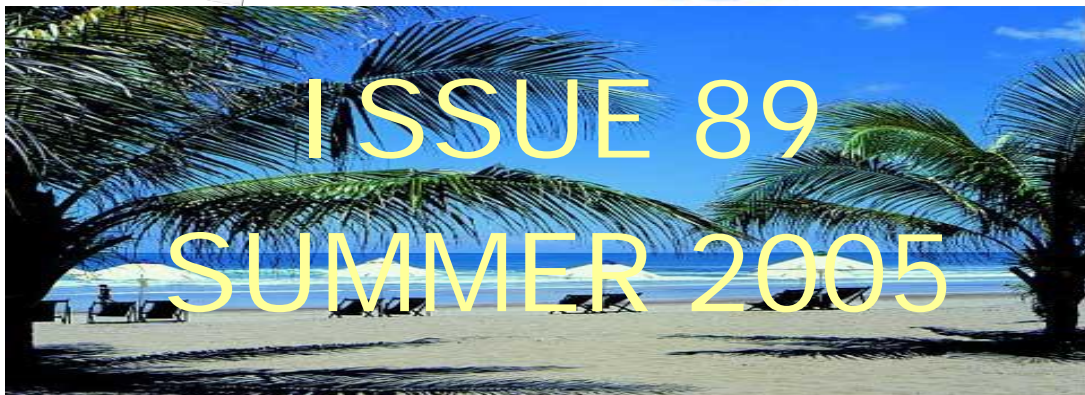# TI*MES

ISSUE 89

SUMMER 2005

20th International TI-Treff. 16th, 17th, 18th
September 2005.

RYANAIR.COM

Flights to the Treff are
£32 per person RETURN!!!!

London Stanstead To
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Supporting the **TI-99/4** and **/4**𝔸, the MYARC GENEVE 9640, Michael Becker SGCPU card,
And any other compatible machine.

TI*MES index..

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And any other compatible machine.

Disclaimer

The views expressed in the articles in this magazine are those of the individual author, and not necessarily the view of the magazine or the group.

Email membership terms and conditions! J

At this point we would like to give a warning to those who have subscribed with email membership. You have expressed this preference because you want your TI*MES magazine to be delivered by a more reliable medium than the Royal Mail! However, as you must realise, PC file formats these days are bloated beyond belief and the Microsoft Word file of a newsletter could be as big as 18 Megabytes!!!
PDF files do compress the file size down, but they may still be a considerable size!

Receiving large attachments these days is no big deal, as Yahoo.co.uk offer a free email service which gives you a maximum in-box of 100Megabytes!

If you specify an email address for your email membership then you _**MUST MAKE SURE**_ that the email account has _**sufficient capacity**_ to be able to receive these attachments!!!

It's not all doom and gloom though! Trevor and I have been pondering converting the magazine to HTML format and putting it on the web site so that people could read it online. Trevor already has the web code to allow us to make it password protected from non-signed-up visitors! We also need to make sure that it only uses bog-standard HTML and GIF or JPEG images so that it is available to a wider audience. Trevor has the habit of automatically using loads of flash and applets on his websites, but I think we need to make things a bit simpler so it can be accessed by a wider range of web browsers. **J**

MAKE A SPACE IN YOUR DIARIES FOR 4th and 5th MARCH 2006 for the TWO DAY WORKSHOP AT STANTON ST.JOHN VILLAGE HALL, NEAR OXFORD.

From the Chairman's Chair

By Trevor Stevens

Sorry, Trevor's been busy and not had time to write an article this quarter. I'm sure he'll be back with a vengeance in the next issue, especially since we're all going away to the TI-Treff in Venlo. We'll both have lots to write about!

If you want to see what Trevor's been up to, look up the following link on the interweb thingy…

http://www.megatech.org.uk/cctv.htm

He's now selling internet cameras which can be placed anywhere and viewed from anywhere on the planet via the net! If you follow the link above and click on the picture of the camera, you will have a live video of Trevor's house which is filmed from the front first floor window of his shop! ☺

The TI Never Dies – By Richard Twyning

Dear TI'ers,

I'm beginning this article actually at the 2005 AGM on Saturday 4th of June.

I arrived a bit early as Gill gave me a lift and she had to then drive into work, so I've already been here for 45 minutes. I'm quite excited waiting for everyone to arrive. I'm in anticipation to see what progress Francesco has made with the Bulletin Board. I still find the prospect of a bulletin board quite exciting, even if it might seem a bit outdated in this day and age! I've had DSL broadband internet for quite a while which is excellent as you can still receive phone calls whilst you're connected to the net!

However, I've just bought a Wi-Fi router from Trevor. Even with DSL (Digital Subscriber Line) broadband there's still a dialing process which seems a bit mad, but you have to dial zero to make the connection! The router handles all the dialing itself so when you turn on the computer the internet's already available.

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And any other compatible machine.

The router then broadcasts the internet via Wi-Fi (actually 802.11b or 802.11g). .11b is 11Mbits per second and g is 54 Megabits. I realised that the Wi-Fi card I got for my laptop is only **b** version which is 11Mbits per second. I'm not too perturbed as my broadband connection is only 1.1Mbits!

Berry Harmsen was the first to arrive at the AGM after me. I was amazed and very impressed when he showed me the Thierry Nouspickel IDE card. We didn't have a demonstration of it running because the software is still being worked on, but the thing I was amazed about most is that Berry also brought a small Compact Flash reader! It is an off the shelf IDE device that can be used with the interface, but they are working on software that handles a new filing system. Not only does this allow you to divide the compact flash card into individual partitions that work as TI disks, but there will be also PC software that lets you put the compact flash card in a card reader on a PC or laptop and directly read the TI files! This could be news for David Caine since he's been having problems with his Myarc Hard and Floppy Disk Controller. I'm not sure how many drives he had online, but certainly not 256 megabytes worth! Yep, 256 Megs was the capacity of the card that Berry brought along with him saying that he paid around £50 for it.
The IDE card has very few components compared to the HFDCC, making it thousands of times more reliable! I can't speak for the SCSI card as I've not used it in anger yet and don't think I will for the foreseeable future as I've not got anywhere to set up any TI system, not even a console! I'd really love to though so I could transfer all of my TI software onto PC format so I can back it up to CD.

Trevor finally turned up, and after helping to get his hardware in, I helped him modify a monitor. He's got loads of CUB monitors. He's had one for quite a few years which he's used on his system with a Mechatronic 80 Column card. Something went pop at the Stanton St. John workshop! Trevor bought this monitor ready modified and it worked OK with the 80 column card. He wanted to try and modify this other monitor to use on the day.
Initially I was skeptical about getting anything out of it because the boards were entirely different revisions, but there were several links that could be identified that were numbered and were broken on the modified monitor. At first I didn't think we were having any effect, but all of a sudden a picture appeared! It isn't quite correct as there are severe colour problems, but it was enough to enable it to be useful during the AGM.

My son Cory is 6 and was joining me for the day and he was the next to arrive. Soon after that, David Caine arrived by train with his "portable" system. This is a system that uses a standalone TI controller and has a 3.5" floppy drive. The standalone controller only has a single sided capacity, so David has put together a collection of software that's suited to running from single sided disks.

Around 11am ish Francesco Lama and Simon Burford arrived at the same time. It's a while since Simon's been to a meeting and it was good to see him again.
Simon told us about his exploits buying and selling TI gear on the internet. He said that he recently saw a Triton Super Extended BASIC III go for over £200!!! It fetched this price because it's listed as being extremely rare. I'm afraid it sounds too tempting to pass up these sorts of deals and I'm thinking of selling my MBX on eBay! If a simple cartridge fetched £200, what would the MBX fetch?!?!?
I was made redundant in March and only just started a new job two days after the AGM, so a bit extra money could get me a Bluetooth to serial converter and allow me to talk to a TI with my Bluetooth devices, especially since I'm about to upgrade my NOKIA Communicator to

the latest model. It's now a TI OMAP processor. I've mentioned this before a couple of articles ago, but it's basically an ARM processor core to which TI have added their special touch of an excellent Digital Signal Processor which handles all of the NOKIA 9500's graphics and sound.

I think I could be imminently close to my dream of a pocket TI before the end of the year! A bit more about this later!

Francesco brought his system with him and Trevor spent time looking at the S&T BBS. Francesco had received information from Tim Tesch (the author of S&T) about wiring up the modem cable. Tim was a genius in coming up with S&T BBS. It uses both of the TI's ports to make up for its shortcomings.   It's strange that for all TI's excellent products and inventions and the amazing machine and even more amazing architecture in the TI-99/4 and 4A that they should make screw ups in certain areas. The ALPHA LOCK interfering with joysticks was a screw-up. Not making it an open architecture for 3rd parties to freely develop hardware and software was another screw-up. A fairly big one was having a BASIC interpreter that was interpreted! Alongside this one was the lack of an ability to directly link assembly language programs from TI BASIC. Another fault is the lack of all the necessary lines on the serial port to provide proper flow control. This is where Tim had the genius idea of using both the ports, since they're on the same 25-way connector on the RS232 card! The best thing he did was also to use the right language for the right job! Obviously the quickest language to develop anything in is Extended BASIC, so the best part of S&T was that it uses assembly language where it counts, which is to access the RS232 port, which is normally notoriously crap in BASIC or Extended BASIC! I remember it was one of my biggest frustrations when I was younger when I struggled to read data from the RS232 port!
This had the advantage when Trevor was running the BBS to allow me to write my own extension to S&T using Extended BASIC. Unfortunately, I didn't complete the development before the group's Hard and Floppy Disk Controller card died!

I'm not sure on the day what progress was made on the BBS! I was trying to control a six-year-old at the time!
We had our meeting at around 2pm, during which Andrew Cornforth and Ian James arrived. I'll do the minutes of the meeting next...

Minutes of the meeting…

Trevor's comments…

Trevor kicked off with his opening welcome message. He said that it's been a fairly normal year. Some people have left the group and some people have rejoined. He also mentioned the workshop which we held in March in Stanton St. John near Oxford. Of course we didn't have the turnout we would have wished for again, but I certainly enjoyed it, and I think everyone else did too, although the only bad thing was that Trevor and I had to leave early because my dad had been taken into hospital.

Trevor also commented on the group's internet site which is now online (www.ti99ug.co.uk).
He also talked about group membership and that email membership had become popular since it means that members receive their magazines very quickly and there's no risk of it getting lost in the post!!! We would also like to encourage more members to take up email membership as it would also mean that we wouldn't have to print any magazines which is

very time consuming compared to just automatically scheduling a batch of emails, which only takes a couple of minutes!

Trevor's next comment was the TI Hall Of Fame which we are about to print in TI*MES. This is something we found on the internet and have the permission to publish. It's the biography of anyone who is anyone in the world of the TI.

Trevor's final comment was on his idea to organize a two day workshop for sometime in March at Stanton St. John.

The Stanton St. John workshop is held in the village hall and the inspiration for the meeting was that Trevor had the idea of parking his caravan in the car park and making it a two day event! There'll be more about this later in the magazine.

General discussion…

We had our general discussion about the state of the group and had chance to come up with new ideas. One of these ideas was to create a Pay Pal account and have a link to it on the group's website to allow people to pay their membership on line.

There was also an idea to make up a DVD of TI software to sell via the media library.

We have also decided to make a members area on the website where only paid up members can log in to download past issues of TI*MES. Of course only the issues for which we currently have electronic copies will be available!

Any issues older than that will have to wait until I've got a new scanner and the time to scan them in!

Before I go any further I must say again that to receive TI*MES by email you need to be able to receive, download and read PDF files. I am however thinking that we need to modify the website to make it totally accessible with a standard web browser. Ian James complained that his internet TV thingy wasn't able to cope with all of the extra stuff such as Java applets and flash etc. I need to help Trevor re-design it and give users a path through the site whereby they don't have to touch anything other than pure HTML and GIF and JPG images. That way, ANY browser should be able to view it and none of that extra gubbins is required anyway to make TI*MES available. TI*MES only contains pictures and text which is certainly a capability of pure HTML files and GIF/JPG images!

I hope I've not missed anything.

We also talked about something else, which I'm afraid is a PC application, but it will help the TI community keep in touch! I'll not talk about it here because I want to devote a bit more time to it later on.

Committee Re-elections…

The final formality for the group was the re-elections of the committee members. All of the committee members have been re-elected in their same roles...

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Chairman............................Trevor Stevens
General Secretary and Treasurer......Richard Twyning
TI*MES Editors......................both of the above!
Media Librarian.....................Francesco Lama
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Gone are the good old days when we used to have a Vice Chairman and the role of secretary and treasurer were separate. Hope you also like the title of Media Librarian that I came up with to combine Francesco's different jobs! There used to be a Cassette Librarian, Disk Librarian, and a Module Librarian. Now Francesco has to handle all three jobs!

There's a change of location now! I'm typing on my faithful communicator at around 30,000 feet! It's 5:30 14th June 2005 and I'm off to Tenerife for a week! Luckily it was all paid for before I was made redundant and I've also just found a new job which I've now been doing for a week. I love it. It's a different world from my last job and this company is a negative image of Whiteley's where I've just finished. I'm now working in a modern building with air conditioning, compared to the old place with the dusty environment, crumbling buildings, and asbestos roofs. I actually contacted the Health and Safety and had part of the building shut down! It was condemned and even fenced off so people couldn't park near it!!!

I'm certainly glad I brought my phone on the plane as I've been able to get quite a bit of my article finished! Another 45 minutes to go until we land and I've been typing throughout most of the journey and I've only used one blip on the battery! Most laptops would have died ages ago!!! For all its faults when I bought it way back in August 2001 it has been a lot more useful than its predecessor!

One thing that has proved quite useful is the DOS emulator, but I still haven't achieved the dream of a pocket TI!!! The new communicator now has a TI processor which is an OMAP processor. I've mentioned these before in an article, but unfortunately I still don't know what OMAP stands for! I did read it somewhere, but I've lost it again! ARM (Advanced RISC Machines) don't make processors themselves. They license out the design for other companies to manufacture. Luckily for everyone, TI decided to get involved with ARM and produce their OMAP chips which are an advanced ARM9 core with a Digital Signal Processor bolted on the top.

All of the 9500's graphics and audio are handled very fast in hardware by the OMAP processor! This reduces the chip count and therefore the size.

The new communicator is a centimeter shorter and a few millimeters thinner than the 9210, but the OMAP processor is three times faster than the 9210!

There should be a block diagram of the OMAP processor on the next page. You'll be able to see why the 9500 is smaller than the 9210, but does so much more. TI have crammed loads into their OMAP chips!

The 9210 has always had memory problems. In the first revision of the software I kept getting "memory full" errors, but in the current revision, Nokia have been very crafty! Each system application monitors the system RAM and automatically closes itself! For example, when sending a FAX, the word processor creates an outgoing FAX message to which you can add the recipient's details. The communicator obviously then needs memory to render an image of the fax so it can be sent, so in the current revision of the system software, all of the system applications are monitoring the RAM and they close themselves down. In the original revision of the software the system applications didn't perform this check! I had to use a third party task manager called Switcher to close down unwanted applications so I had enough memory to send faxes etc. In fact I still use Switcher when I want to do things such as read very large PDF documents, use the web browser, or use the PC emulator!

Texas Instruments OMAP 1510 processor block diagram (as used in the NOKIA 9500)
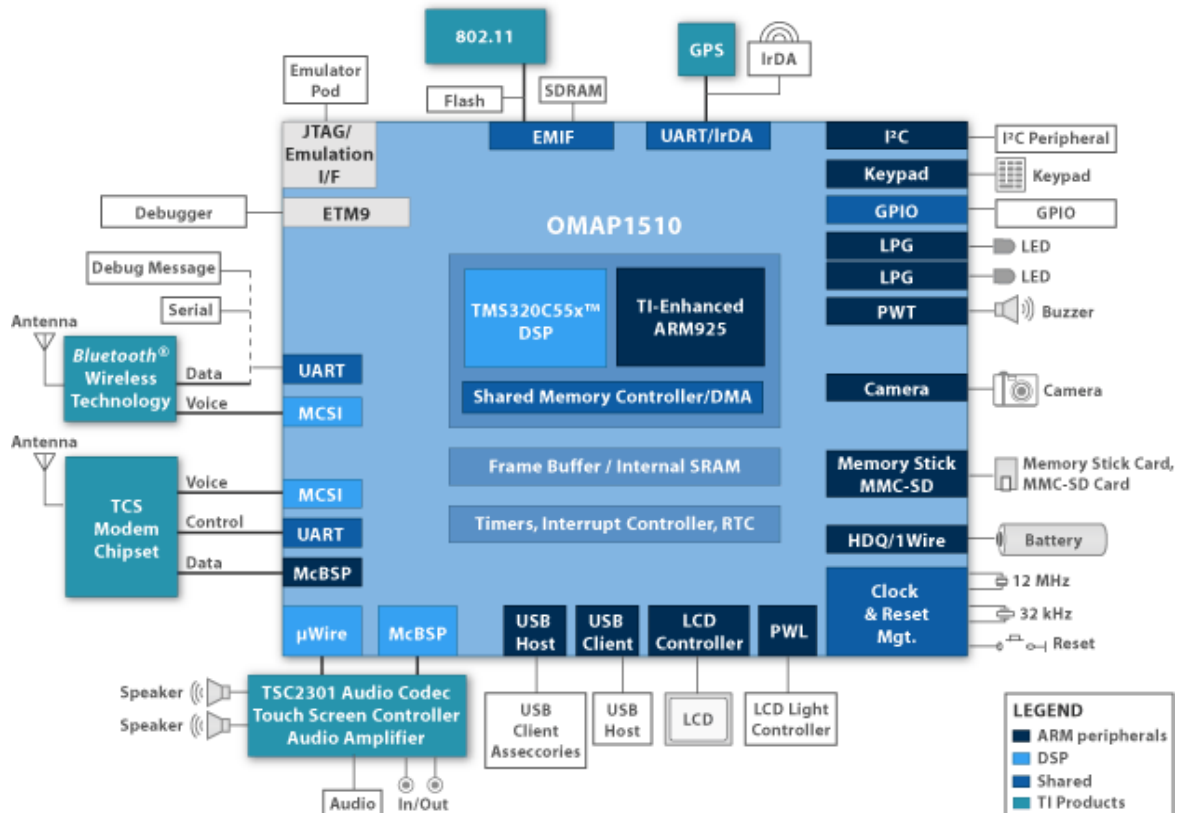
The 9210 was advertised as having 8MB of RAM, which is the same RAM contained in the PSION Series 5. Therefore I was expecting something a lot faster than the Series 5, but it was a massive disappointment! I've learned to live with these faults, but despite having 8MB of ram there's only 2262K free when running the word processor with this document from the start to **NOW** and Switcher which I used to check the RAM and shut everything else down. The instance of the word processor containing this document claims to take 144K and Switcher itself takes 52K. You can immediately realize that we're dealing with an environment many times more efficient than a laptop running Window$, but it struggles even with 2MB of free RAM!!

The new one doesn't have any of these problems. It has 32MB of RAM which leaves over 22MB of RAM available to the user!!!
One piece of disappointing news I've had recently is that my current DOS PC emulator (XTM) won't run on the 9500 because it looks in ROM for fonts which are missing on the 9500!

It's not all doom and gloom though, because there is another PC emulator on the market which will eventually run on the 9500 called PocketDOS. I say eventually because it's not been released yet for the Symbian operating system! They promised the first quarter of 2005 and then they said another couple of months, and they keep making the excuse that there's not much demand for it on the Symbian OS, which is ludicrous since there are over 40 different devices all using Symbian from all the major mobile phone manufacturers.

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And any other compatible machine.

My personal dream of a pocket TI is not yet realized, but for anyone out there it could be. PocketDOS has been out for years on the Pocket PC and I bet you could pick a Pocket PC up very cheaply on eBay. XTM doesn't support VGA graphics, which means it won't run V9T9 or PC99! PocketDOS does this and much more though!
The specifications of the PC it emulates are...

PocketDOS Specifications

```
CPU emulation:
Intel 80188/80186


Memory:
256Kb - 736Kb (adjustable) base memory.  Allows up to 724Kb free
Conventional Memory for DOS programs.*

0Kb - 240Kb (adjustable) Upper Memory Block (UMB) memory.  Up to 16Mb
Expanded Memory (L.I.M. EMS 4.0) Virtual memory (only RAM that is used is
allocated)
* depends on DOS version


IBM CGA/VGA emulation
40x25          Colour     or  Grayscale   text
80x25          Colour     or  Grayscale   text (1)
320x200     4 Colour      or  Grayscale   Graphics Mode
640x200        Monochrome             Graphics Mode (2)
320x200    16 Colour               Graphics Mode
640x200    16 Colour               Graphics Mode (1)
640x350       Monochrome             Graphics Mode (1)
640x350    16 Colour               Graphics Mode (1)
640x480       Monochrome             Graphics Mode (1)
640x480    16 Colour               Graphics Mode (1)
320x200   256 Colour               Graphics Mode (3)

(1) = compressed on displays < 480 pixels wide
(2) = compressed on displays < 640 pixels wide
(3) = monochrome on displays with < 16 bit colour


VESA SuperVGA (VBE 1.2) emulation :
640x480   256 Colour                    Graphics Mode (1)(2)
640x400   256 Colour                    Graphics Mode (1)(2)
640x200   256 Colour                    Graphics Mode (1)(2)

(1) = compressed on displays < 640 pixels wide
(2) = monochrome on displays with < 16 bit colour


HP Palmtop INT5F emulation :
640x200       Monochrome             Graphics Mode (1)

(1) = compressed on displays < 640 pixels wide.


Accelerated with Win32 GDI functions.


IBM PC/XT hardware emulation:
Keyboard emulation (83 keys)
Programmable Interrupt Controller (PIC) emulation
Programmable Timer (PIT) emulation

Serial port (UART) emulation
Parallel port emulation
```

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```
PC speaker emulation

180Kb, 360Kb, 720Kb, 1.2Mb, 1.44Mb, 2.88Mb INT13 Floppy disk emulation
2Mb-250Mb INT13 Hard disk emulation

INT13 access to Hard disk devices (e.g. CompactFlash card)


OS compatibility:
Compatible with Datalight ROM-DOS v6.22 (included)
Compatible with all versions of MS-DOS (up to v6.22)

Compatible with all versions of Caldera OpenDOS and DR-DOS (up to v7.03)
Compatible with all versions of PTS-DOS (up to v6.70) Compatible with
CEDOS v1.0

Compatible with MS-Windows v3.0
Compatible with GEOS

Compatible with several non-DOS operating systems


ROM BIOS emulation:
Native ROM BIOS to increase speed.
All standard BIOS interrupts are emulated, including keyboard, comms,
printer, disks and video.


Mouse emulation:
Built-in DOS mouse driver for stylus or other pointing device.


COM port emulation:
Serial ports, modems and IR ports can be used as COM1 & COM2 from
emulation.
LPT port emulation:
LPT1 port can be redirected to a serial, parallel, IR or network printer.
```

As you can see, it should be more than enough to run V9T9 or PC99! XTM is also limited to only DOS base memory as well as CGA graphics, which really affects the sorts of programs you can run on it!

Mobile BBS

I'm staying with the communicator a while longer yet and also discussing the BBS. I don't want to take attention from the work that Francesco's doing with the BBS in trying to get S&T running again, but I've had an idea for some time to write a BBS program that runs directly on my communicator!

The advantage is that it's always running and has a separate number for data calls.

I'm not sure if you know how mobile phones and SIM cards work, but the SIM is just a Subscriber Identity Module. It identifies the subscriber to the network so the network knows where the subscriber is. It's the network itself that stores the numbers that belong to the subscriber. Every subscriber has obviously got a normal voice number which will cause the phone to ring. They can also have a fax number and data number activated which cause different things to happen! Most mobiles today have a FAX MODEM which can handle anything that you can do on a normal PC Modem. All you would need to get is a data cable, or even a Bluetooth to serial converter to connect it to the TI.

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And any other compatible machine.

Some really old phones can't distinguish between FAX, Voice or Data, they will just ring! Most new phones will still make some noise and display on screen "FAX call" or "DATA call". They will give you an option to "Answer as FAX" and if you do, it will activate the FAX Modem. You'll still need to have your phone connected to a PC or PDA and have software capable of receiving the FAX. The communicator on the other hand doesn't make any sound if anyone calls my FAX number. It will display FAX call on screen, but won't make a sound. It of course is a computer in its own right and has built-in software to automatically answer the FAX call and receive the FAX. It only makes a sound if the fax is successfully received and mine says "FAX message" in a familiar voice courtesy of the TI Speech Synthesizer which I recorded as a WAV file!

If the Communicator receives a data call it can also be transparently intercepted, but there is no standard application that does this. I have example source code somewhere that can access the internal modem. My data number gets used VERY RARELY, and since reading the Hacker's Handbook at the age of 15, I've always wanted my own Bulletin Board. This was the reason I used to try and read the RS232 port in Extended BASIC and got very annoyed that TI had screwed up big style and it wouldn't work! This is how I met Gordon Pitt who used to run the West Midland TI users group, and also Richard Sierakowski who used to run R.S.T.S. and who sold me my first GENEVE! I don't think that I would still be interested in the TI today if I hadn't met these people as I was beginning to feel a little bit on my own and out in the wilderness.

I want to write a bulletin board for my communicator! A company that write software for the communicator already write software that demonstrates what I'm proposing is possible. I even approached them with the idea, but they said it wasn't viable because no one would want to tie up their phone with people constantly phoning in! I don't think it would be a problem for the volume of traffic our group would produce, so I'm going to have a go at doing it myself! My communicator is always running, so it might as well be doing something useful whilst it's sitting there. It's also good to exploit modern technology and save our precious TI hardware. If Francesco fails to get the BBS working or if he decides he no longer has the space for a second system, or decides that the extra line is not worth keeping, or just wants to save his hardware, then we'll have something to fall back on that will be no cost to the group. There are still a lot of TI'ers out there who don't have PC's and therefore don't have internet access, so a standard dial-in BBS would be a good point of contact for them. Another disappointing thing is that S&T is of course based on a TI and therefore doesn't have internet access. Some bulletin board software on PC's actually support internet access. This means that dial-in users can use their simple text based connections to send and receive internet email.

Francesco unfortunately doesn't have room in his attic to set up a PC as well as his TI system, so we'll only be able to use normal BBS messages. The problem with these though is that you have to be online to read them.

What I'm proposing is to base it around internet email so users with full internet connections will receive messages in their normal inboxes, but they'll have possibly been sent by someone with a good old TI dialing into the BBS!

Is it going to be too expensive for me for my communicator to connect to the internet to transfer BBS emails to an internet mailbox and vice versa?

No! You heard me talk about getting a Wi-Fi router earlier? I've been using it with my laptop for a while, but it was always intended to be for my phone. The 9500 now has Wi-Fi access and can therefore access the internet at my current full broadband speed!

It will be limited becuase of the available storage space on my phone? NO!
The 9500 has 80 Meg of internal flash storage and I have a spare 256MB MMC card which I'm going to be using with it for a while until I can get a bigger card. The 9500 will support up to 2Gigabyte MMC's. Currently **www.ebuyer.co.uk** have a 1 Gigabyte card available for £50 and I'm loathed to spend the money on it if 2 Gig cards are around the corner. I think you will agree that this will give the BBS more than enough storage for TI files. I'm sure that the 256 MB card I already have will be more than enough, and by the time I do start to run out of space, the 2Gig MMC's should be properly available in the UK. I think that 256MB is the current upper limit to which the TI can format a SCSI hard disk!
I'm determined to get this off of the ground as I want a decent sellable application for the Symbian OS written in C++. I already have some source code which will wait for incoming calls which I obtained from forum.nokia.com, but it will certainly need some work.

Also, there is AppForge who make a development kit for all devices, not just Symbian OS. Their system allows you to program for your target device using Visual BASIC! It's a lot quicker to get a program up and running in VB and their latest version now supports call access and internet access on the 9500. I need to work on "acquiring" a version as their price for the development kit is a ludicrous $1000!!!! They're putting off developers who do it as a hobby. It's the same problem that Micro$oft perpetuate, and why I won't spend good money on Micro$oft software. If Office cost £40 I'd certainly buy it, and I'm sure hundreds of other people would too, but it's just not worth the £400 they ask for it, although I'm not sure of the exact price these days.
I'm determined to get something off of the ground anyway. It's too much of an interesting project not to do something with it. Another thing I seem to be neglecting is Java. The 9210 "had" Java except my 9210 was a bog standard 9210 and you had to install the Java runtime engine from CD onto your memory card because it was far too big to fit in the internal flash, and it was a waste of time anyway because the device was so crippled in terms of RAM that no real decent Java programs would run anyway! The 9210i had more memory and bigger internal flash and you could therefore run bigger Java programs.
The 9500 sorts it out once and for all. There are no user-installable system apps. On the 9210 after you wanted to perform a system clean and reinstallation, (which is so nasty I've only done it twice since August 2001!!) you have to reinstall certain system apps to the internal flash of the phone and to the memory card. There's probably the best part of 10 Megs worth of data that all has to be transferred serially to the phone. The Java installation alone is about 2.5 Megs!!!!

In the 9500 everything's in ROM. A reformat of the device doesn't even involve the memory card now because the memory cards are truly hot-swappable. Every system app is now in ROM (really EEPROM) which is totally separate from the user's internal flash which is now 80Meg and not the dismal 4meg on the 9210!!!

The good thing about Java is that it's part of the standard NOKIA/SYMBIAN development kit and it's a bit more integrated into the system libraries of the phone, so I think that any system library function you can access in a standard C++ program you can also access from a Java program.
The weird thing is that the last time I tried to compile any Java and run it on the communicator was for the 9210 and I just couldn't get the example programs to compile! I think that's why I gave up in the end!

Things have hopefully moved on a long way since then and the compile process should be a lot easier! I was able to compile the C++ programming examples a lot easier than the Java examples, and actually run them on the phone which is ludicrous! Java is a much easier language to program and it's VERY powerful. The company I worked for, Concept Design from 2001 to 2002 actually sent me on a Learning Tree course for a week to learn Java and I've still not forgotten everything I learned. It shouldn't take too much getting back into and if the Mobile VB route doesn't work out, then I'll have Java to fall back on.

At the two day workshop I'm determined to have some sort of BBS demonstration whether it's something running on my phone, or Francesco's system running S & T. If we use Francesco's system I'm going to bring my old communicators because they can be used as FAX Modems. One can be used for the outgoing call, and one can be used for the incoming call on the BBS end. My new communicator won't work because NOKIA have seen fit to completely remove the capability of plugging into serial devices! The whole world is trying to kill the RS232 serial port. You can't easily buy a laptop that has a serial port these days, so it's lucky that there's such a thing as a USB to serial converter!

The other thing we talked about at the AGM that I mentioned earlier was the possibility of advancing the online TI community to include online voice conferences and I mentioned a piece of software that would enable us to do this called SKYPE.
SKYPE is available for Windows, Linux, Mac, Pocket PC, and hopefully soon, Symbian EPOC and other mobile operating systems. It requires the use of PC speakers and microphone and converts your digitised audio into packets that can be sent via the internet. It doesn't use a big central server to administer calls either! Once a connection is made, the SKYPE software on individual PC's talks directly to other individuals, so it's very fast and very clear. Trevor and I had two SKYPE conversations recently and it was much better than using the phone. For a start, it was totally hands free and of course the bigger advantage is that it's money free too! For normal use SKYPE doesn't cost anything!

They make their money with additional services. You can buy a subscription to SKYPE Out which enables you to use SKYPE to directly call a land-line! You can also buy a subscription to SKYPE In which provides you with a phone number and then you can actually receive calls from land lines!!!!

The advantage to us is that it would allow us to have conference calls online between two or more members. This would enable us to keep in closer contact than even emails can allow. Any group member who has a PC or other device capable of running SKYPE can then join in a voice conference on the internet. The SKYPE program also includes the standard chat window where you can type messages, and it will enable you to send a file simultaneously whilst having a hands free conversation!
Once the Symbian version is released I can sit in my living room I can receive or make SKYPE calls free of charge to anyone in the world with a SKYPE subscription via my wireless connection!!!
It's technology at its best, doing what it should do and making our lives easier, and saving us money!

You can download SKYPE from **www.skype.com** and we would like to hear from you if you do. Officially it's only Trevor and myself that have it running at the moment.
You will need our skype usernames to be able to call us.

Mine is just: **richardtwyning**
Trevors is: **trevorstevensmegatech**

Please install it and contact us. I think even if we're off line you should be able to add us to your contacts!!!

Forthcoming events…

20th International Treff

Before I close my article I'd like to remind you again about the 20th International Treff to be held at the Hotel Wilhelmina, Venlo, Netherlands.
It is being organised by the Dutch chairman, Berry Harmsen. Berry gives us lots of support by attending our meetings and workshops, so please help us return the favour!

My wife Gillian's going, and Trevor's taking his wife Sue. Double rooms are only 100 Euros per night, and that includes full entry to the Treff itself, and includes the Treff dinner on the Saturday night, which will be one BIG party!

The fun starts on Friday night though. Berry has organised a "wet" and "dry" program for the ladies so we're guaranteed to get rid of them, whatever the weather! Then we have no excuse for wasting good drinking time at the bar to talk about the **TWO compact flash interfaces that are now available for the TI!!!**

Please contact Berry Harmsen if you're interested in attending to book a room. If you've got a laptop and need to stay in contact with the office, then the Hotel Wilhelmina has FULL Wi-Fi internet access, so you can check your emails free of charge!

Berry's email addresses are **berry.harmsen@wxs.nl** and **bharmsen@iba.nl**
Why don't you come along for the weekend? You can always turn it into a long holiday and get the train to Amsterdam and spend some time there. **I hear that the window shopping is quite entertaining!**

2006 Stanton St. John, 2-Day Workshop

Trevor had the excellent idea of organizing a 2-day workshop in March next year. I mentioned earlier that we talked about it at the AGM. Francesco has already kindly organized it for us. It will take place on the **Saturday 4th and Sunday 5th of March 2006** at the Stanton St. John village hall in Stanton St. John just north east of Oxford.

We had a workshop there either in February or March this year; I can't remember exactly when it was now. The hall is quite big and is about the same size as the St. Johns Ambulance hall that we used to hire in Derby.

Trevor and I will be camping outside in his caravan and we'll have an alarm on the hall, so there's no problem about leaving any equipment in there over night!

DIRECTIONS TO STANTON ST. JOHN VILLAGE HALL

FROM THE NORTH OR EAST: approach Oxford along the M40 (whether coming from the Birmingham or the London direction), and leave the motorway at junction 8, heading for Oxford along the A40.

The dual carriage way will continue until you reach the Green Road Roundabout, where you will need to take the fourth exit (signposted Barton, Horton-Cum-Studley etc..). Follow this road down into the dip and up the hill on the other side. Continue along it until you reach the staggered junction at the end. Turn right at this junction and drive on until you reach a pub on your left-hand-side, called "The Talk House". Turn left into the village of Stanton St. John immediately after the pub. You will soon pass a second (and much better) pub, called "The Star Inn". Continue past the pub, and you should see signs for the TI99 Workshop, pointing towards the Village Hall car park, on the right hand side of the road (if you reach the church, on the left hand side, you'll have gone too far).

FROM THE WEST: approach Oxford along the A40 (from the Gloucester direction). You will first come to the Wolvercote roundabout. Take the third exit off it, and continue along the Oxford ring-road. You will come to a second roundabout (Banbury Road), at which you should take the second exit, in order to again continue along the Oxford ring-road. Drive on for several miles, until you reach the Green Road Roundabout. Take the first exit off this (signposted Barton, Horton-Cum-Studley etc..). Follow this road down into the dip and up the hill on the other side. Continue along it until you reach the staggered junction at the end. Turn right at this junction and drive on until you reach a pub on your left-hand-side, called "The Talk House". Turn left into the village of Stanton St. John immediately after the pub. You will soon pass a second (and much better) pub, called "The Star Inn". Continue past the pub, and you should see signs for the TI99 Workshop, pointing towards the Village Hall car park, on the right hand side of the road (if you reach the church, on the left hand side, you'll have gone too far).

FROM THE SOUTH: approach Oxford along the A34 (from the Newbury direction). Proceed past two main exits for Oxford, signposted Cowley and Bottley (North Hinksey) respectively, and turn off at the one signposted Woodstock and Blenheim Palace. At the subsequent roundabout take the fourth exit (dual carriage way towards Oxford, make sure you do not go up the bank again to the A34!). Continue along this road until you reach the Wolvercote roundabout. Take the second exit off this roundabout , and continue along the Oxford ring-road. You will come to a second roundabout (Banbury Road), at which you should take the second exit, in order to again continue along the Oxford ring-road. Drive on for several miles, until you reach the Green Road Roundabout. Take the first exit off this (signposted Barton, Horton-Cum-Studley etc..). Follow this road down into the dip and up the hill on the other side. Continue along it until you reach the staggered junction at the end. Turn right at this junction and drive on until you reach a pub on your left-hand-side, called "The Talk House". Turn left into the village of Stanton St. John immediately after the pub. You will soon pass a second (and much better) pub, called "The Star Inn". Continue past the pub, and you should see signs for the TI99 Workshop, pointing towards the Village Hall car

park, on the right hand side of the road (if you reach the church, on the left hand side, you'll have gone too far).

When you arrive in Stanton, Francesco will no doubt re-deploy a TI-sign to guide the way. Please don't confuse the TI-Sign with a map of Kenya, which we are told are quite similar.

Here's an important way to spot the difference…

<div align="center">

KENYA   TI sign

</div>

We apologize for any confusion!   Also, if you want to know what we're talking about, you'll have to attend the workshop in March! J

There'll be another reminder about the workshop in the Autumn issue of TI*MES. I'm afraid time is beating me on putting this issue together and I will end my article there! Please support the party in Venlo!

<div align="center">

THE END

BUT…

RICHARD TWYNING WILL RETURN
IN
FROM VENLO WITH LOVE.

</div>

Francesco Lama – Media Librarian

Many thanks to Francesco for supplying us with a new updated module library listing.

MODULE LIBRARY

```
     TITLE                    QTY IN STOCK           PRICE

32k SUPERSPACE (MODIFIED ROMOX) ........ 1 ................... £25.00

ADDITION & SUBTRACTION 1 .............. 1 ...................  £3.00
ADVENTURE + PIRATE TAPE (OTHERS TOO) ... 5 ...................  £5.00
ADVENTURE MODULE ONLY ................. 4 ...................  £3.50
ALPINER ............................... 3 ...................  £8.00
A-MAZING ..............................11 ...................  £3.00

BEGINNING GRAMMAR ..................... 4 ...................  £3.00
BIG FOOT .............................. 1 ...................  £3.50
BLASTO ................................ 2 ...................  £5.00

CAR WARS .............................. 2 ...................  £4.00
CHISHOLM TRAIL ........................ 2 ...................  £3.50

DISK MANAGER .......................... 4 ...................  £2.00
DISK MANAGER 2 ........................ 1 ...................  £4.50
DIVISION 1 ............................ 1 ...................  £3.00
EDITOR ASSEMBLER + MANUALS & DISKS ..... 4 ................... £25.00
EXTENDED BASIC + MANUAL ............... 4 ................... £22.50
EXTENDED BASIC MODULE ................. 5 ................... £15.00

HOUSEHOLD BUDGET MANAGEMENT ........... 4 ...................  £3.50
HUNT THE WUMPUS ....................... 2 ...................  £4.00
HUSTLE (EA VERSION ONLY) .................................... £2.00

INDOOR SOCCER ......................... 2 ...................  £4.00
JAWBREAKER 2 .......................... 2 ...................  £4.00

MINI MEMORY + LINE BY LINE ASS. ....... 4 ................... £15.00
MINI MEMORY AS ABOVE + MINI WRITER ..... 2 ................... £18.00

MOON MINE ............................. 1 ...................  £8.00
MULTIPLAN + SOFTWARE + MANUAL ......... 2 ................... £30.00
MULTIPLICATION 1 ...................... 1 ...................  £3.00
MUNCHMAN .............................. 2 ...................  £3.50

PARSEC ................................ 1 ...................  £4.00
PERSONAL RECORD KEEPING ............... 5 ...................  £3.50
PERSONAL REPORT GENERATOR ............. 2 ...................  £5.50
PHYSICAL FITNESS ...................... 1 ...................  £4.00
PICNIC PARANOIA (NOT MK 2 CONSOLES) .... 1 ...................  £3.50
PROTECTOR (NOT MK 2 CONSOLES) ......... 4 ...................  £5.00
PROTYPER .............................. 1 ................... £20.00

SHAMUS (NOT MK 2 CONSOLES) ............ 3 ...................  £3.50
SPEECH EDITOR ......................... 1 ...................  £3.50
STATISTICS ............................ 1 ...................  £4.00
```

Supporting the **TI-99/4** and **/4**𝔸, the MYARC GENEVE 9640, Michael Becker SGCPU card,
And any other compatible machine.

MODULE LIBRARY continued…

```
   TITLE                              QTY IN STOCK            PRICE

SUPER DEMON ATTACK ..................... 1 ...................  £4.50
SUPER EXTENDED BASIC ................... 1 ................... £30.00

TAX/INVESTMENT RECORD KEEPING .......... 1 ...................  £5.00
TERMINAL EMULATOR 2 .................... 5 ...................  £5.00
THE ATTACK ............................ 2 ...................  £4.00
TI INVADERS ........................... 1 ...................  £4.00
TI LOGO + FOLDER & MANUAL ............. 1 ................... £15.00
TI WRITER MODULE ...................... 1 ...................  £8.00
TOMBSTONE CITY ........................ 4 ...................  £4.00

VIDEO CHESS ........................... 1 ...................  £5.00
VIDEO GAMES 1 ......................... 2 ...................  £3.50

YAHTZEE ............................... 3 ...................  £3.00
ZERO ZAP .............................. 1 ...................  £3.50
```

ROMOX PROJECT

Hardware project by

Trevor Stevens, Michael Becker, and Francesco Lama

There are a large number of ROMOX cartridges still around (Richard Twyning says he has got about 40), and for £3.50 anybody can acquire one, but "what is their use?", I hear you say.

I believe the group also owns a ROMOX programmer, but the number of programs available to load into them by this method is extremely limited. Issues 38 and 41 of **TI*MES** contain some of the answers to the above question.

Yes, since 1992-93 we have been able to put these cartridges to a good use, by converting them into 8Kb SUPER MODULES, which effectively provide an additional 8Kb of RAM in the cartridge port.

Partly due to my own ignorance, I will not dwell on the technical advantages that can be derived from the presence of this memory. Let me just say that, besides a number of games and educational programs (available from the disk library), there are several important programs which take full advantage of this extra space in order to make life much easier for the user. Two applications which I have found to benefit particularly from this memory are TELCO and YAPP. TELCO, as you probably all know, is the telecommunications program which you can use, for instance, to access the group's bulletin board (BBS) via a modem. It is developed according to the "Overlay Concept", that is it consists of a large number of separate modules which need to be accessed to perform different functions at different times, and only some of which can be kept in the limited space of the computer memory at any one time. Therefore, the less memory there is available, the more often will TELCO have to stop to re-load a routine from disk. When only the 32Kb expansion is connected, at most three of the routines can be held in memory at any one time. If a Mini-Memory is used (TELCO can be loaded with this module), 4 routines can be retained. If an 8Kb SUPER MODULE is in the cartridge port, 5 overlays will fit, but if a 32Kb SUPERCART (SuperSpace) is used, up to 11 modules can be held in the computer memory simultaneously, thereby making most tasks performed by TELCO much quicker.

YAPP, or, to give it its full name, Yet Another Painting Program, which was developed by Alexander Hulpke, is an excellent drawing program with a large number of very sophisticated functions. It is, incidentally, the program I have used to draw the diagrams in this article.

Supporting the **TI-99/4** and **/4A**, the MYARC GENEVE 9640, Michael Becker SGCPU card, And any other compatible machine.
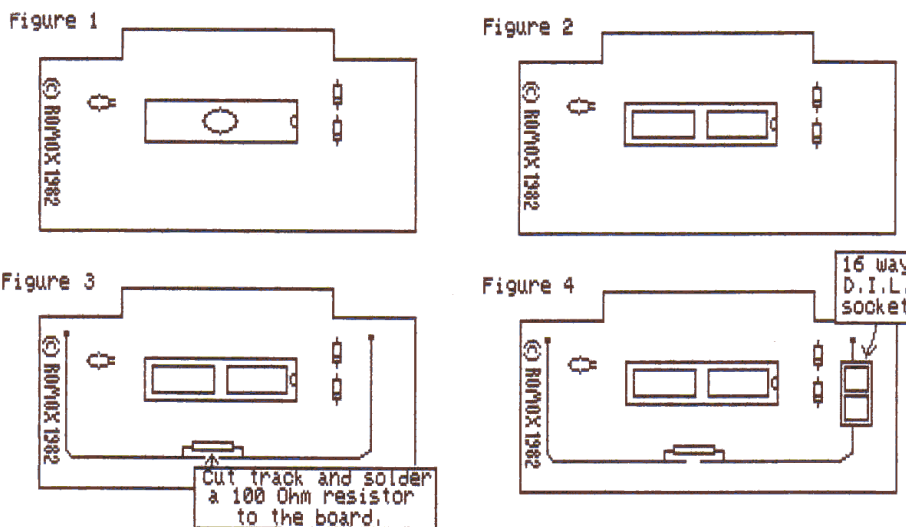
Many of the more advanced functions in YAPP cannot be implemented directly from the drawing part of the program (or otherwise at all) unless more than 32Kb of memory is made available. From personal experience I have found that, apart from allowing me to load GIF images into YAPP (which was otherwise impossible), the SUPERCART has enabled the UNDO function (whereby any mistake made during the latest addition to the drawing can be eliminated by the click of a button), and the selection of the part of the drawing one wishes to send to the printer, including such details as Magnification, Contrast, Colour Table etc. (without the SUPERCART the printing of the required area has to be done by trial and error, by running HARDCOPY, which is a completely different program).

Maybe I have convinced you of the desirability of owning a SUPERCART and maybe I have not. Whatever the answer is, I am going to give you full details on how to build one, complete with diagrams. The explanation will consist of two parts or phases: the first concerning the modifications to be made to the ROMOX module in order to obtain an 8Kb SUPER MODULE (a re-iteration of the details given in the 1992-93 article by Trevor), and the second, the description of the additional circuitry necessary to access the full 32Kb in your module.

PHASE 1

Material
1. A ROMOX module.
2. An Editor/Assembler module or an E/A GROM chip (available from me while stocks last).
3. A 100 Ohm 1/4 Watt resistor.
4. A 16 way D.I.L. socket (available from me).
5. A 28 way D.I.L. socket (available from me).
6. A 32Kb RAM chip (e.g. NEC D43256BCZ-70LL) available from Electromail.
7. 2m of insulated circuit wire (wire-wrapping wire is best).
8. A fine-tipped soldering iron.
9. Solder.
10. Solder-sucker.
11. A pair of wire-cutters/strippers or equivalent (I find scissors work fine for me).

Figure 1

Figure 2

Figure 3

Cut track and solder
a 100 Ohm resistor
to the board.

Figure 4

16 way
D.I.L.
socket

Execution
Step 1

Open the ROMOX module. This is done by squeezing the front and back together. The top should just pop off.

Step 2
Take out the Printed Circuit Board. You should now be holding something similar to figure 1. De-solder the EPROM chip using the solder-sucker.

Step 3
Replace the EPROM chip with the 28 way D.I.L. socket.
N.B.: the end of the socket with a notch (or marked "pin 1") should point toward the two diodes.
Your board should now look something like figure 2.

Step 4
Cut the track as shown in figure 3 and solder a resistor across the gap.

Step 5
N.B. THIS BIT IS TRICKY. 16 holes have to be drilled into the board for the 16 way DIL socket.
CARE MUST BE TAKEN to ensure you do not drill any of the tracks on the board.
Mark the bottom of the D.I.L. socket with an inkpad (or whatever), and place it as in figure 4/figure 5. Hold the board up to a strong light, and MAKE SURE that none of the tracks on the bottom of the board will be cut or touched in any way by the holes you are about to drill. THIS IS VERY IMPORTANT!!!!!

Use a 1 or 1.5 mm drill for the holes. A hand drill is probably preferable, unless you have an upright drill available.

Figure 5

Figure 6
GROM to Edge Connector

Figure 7
Edge Connector of ROMOX underside
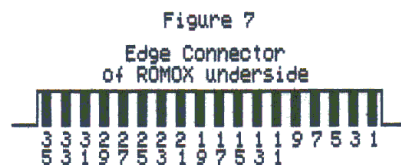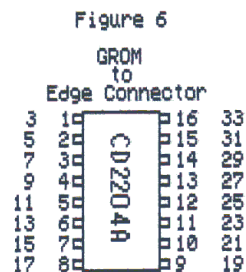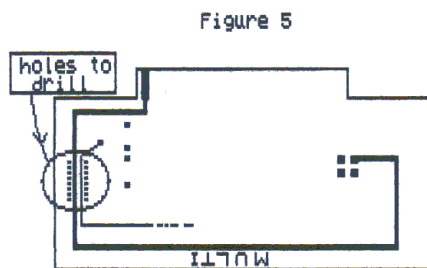
Step 6
The more time you spend on this step, the more chance your module has of working first time.
Place the D.I.L. socket in the board with the notch (or pin 1) facing the edge connector. It is best to glue it in place with araldite, UHU general purpose adhesive, or some other non-conductive glue. Do not use a water based glue.

Now the 16 pins on the socket have to be connected to the edge connector.
N.B. All connections (edge connector odd numbered terminals) are on the underside of the board.
Solder a wire onto each leg and run it to the edge connector, making the connection shown in figure 6. Figure 7 gives you a view of the underside of the edge connector (to which all wires from the legs

of the 16 way D.I.L. socket will go). For example you will connect pin 1 on the chip to pin 3 on the edge connector, pin 2 to pin 5 etc...

TAKE YOUR TIME! DO NOT RUSH THIS STEP!

Step 7
Bend out (horizontal) pins 1 and 26 in the RAM chip and place it in the 28 way D.I.L. socket, making sure that the notch (or pin 1) is on the same side as the notch (or pin 1) of the socket (i.e. pointing toward the two diodes. IF YOU GET THIS WRONG, BANG!!!
Temporarily connect pins 1 and 26 to ground (e.g. pin 2 in the edge connector).

Step 8 (only if an E/A GROM chip is not available separately)
Open your Editor/Assembler module by undoing the screw on the bottom and unclipping the sides.
Remove the board and de-solder the GROM chip, making sure you DO NOT keep the soldering iron in contact with the legs for too long, or you might destroy it.

Place the chip in the 16 way socket on your ROMOX board. NOTE the notch (or pin 1) should face the edge connector, OTHERWISE YOU WILL BLOW YOUR CHIP!

Step 9
CHECK THROUGH STEPS 1-8 TO MAKE SURE YOU HAVE CARRIED THEM OUT CORRECTLY.

STEP 10
Put the ROMOX board back in its case and slot it into the cartridge port of your console. It should act as an Editor/Assembler module. Select E/A from the title screen and check if everything works normally for this module (try loading and running programs, loading the Editor, loading the Assembler etc.). If it does not behave properly, switch off, take the board out of the module again and check whether you have followed steps 1-8 correctly. Look also for bad solder joints and possible solder bridges.

There is, as we have already said, a great deal of software which takes advantage of this module. Besides the ones I have already mentioned there are, for instance, FUNNELWEB, SUPER FORTH (for the SUPERSPACE), BATCH-IT, some versions of QUICKCOPY, and virtually any software that was developed for the original SUPERSPACE.

The RAM in your SUPERSPACE module occupies addresses >6000 to >7FFF. You can treat this as normal CPU addressable memory for data or executable instructions.
N.B. To load a program into this space you must use an AORG >6000 instruction in your assembly program. AORG means Absolute Origin and fixes the start of the program to address >6000.
I have a large number of examples of routines written for this module, and I can certainly send them to you or eventually make them available on the BBS if anyone is interested. Let me know.

THIS IS THE END OF PHASE 1. YOU HAVE NOW BUILT AN 8Kb SUPER MODULE. I SUGGEST YOU TAKE A REST BEFORE YOU EMBARK ONTO THE NEXT PHASE OF THIS PROJECT. I CERTAINLY DID!

PHASE 2

In 1994 I asked Gary Smith for a circuit that would perform bank switching on the above memory chip, so that any of the 4 banks available can be addressed in turn. The one he sent me was designed for enabling one of 4 piggy-backed 8Kb chips, not for the 32Kb chip we have used. I set about modifying the circuit myself, but came to a few wrong conclusions, so that the 2 SUPERCARTs

I sold in 1994-95 were not working properly. In fact, if anyone still has one of these, please send them back to me and I'll correct the circuit!

In 1998 Michael Becker had a look at the problem, and quickly came up with the necessary corrections. It is this corrected version which I am presenting in phase 2.

ADDITIONAL MATERIAL

1. One 74LS32.
2. One 74LS138.
3. One 74LS259.
4. 2m of wire wrapping wire (insulated).
5. One 4.7 kOhm resistor.
6. One 470 nF (or anything between this value and 1 uF) non-electrolytic capacitor.

N.B. All three chips can be obtained from Maplin, Electromail, or any other components retail outlet.

DIAGRAM 1

↓ MEM26 (from diagram 1)

```
    28  27  26  25  24  23  22  21  20  19  18  17  16  15

              NEC D43256BCZ-70LL

    1   2   3   4   5   6   7   8   9   10  11  12  13  14
```

↑ MEM1 (from diagram 1)
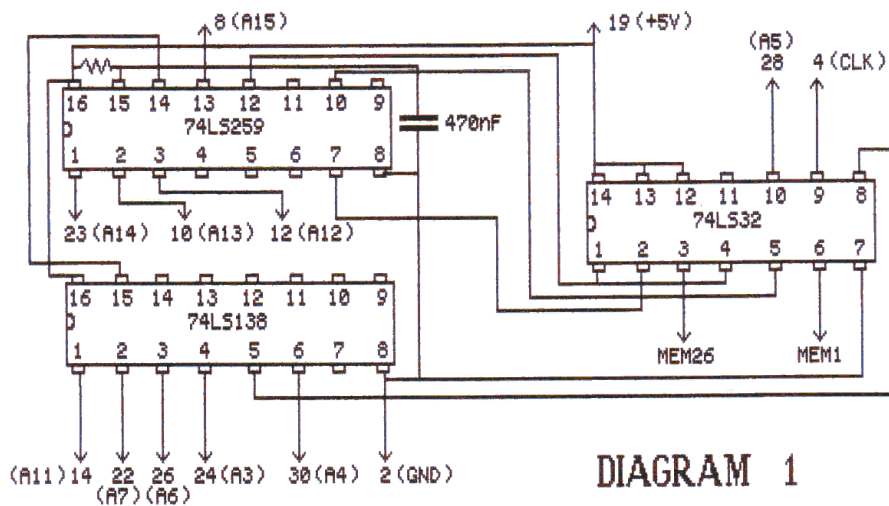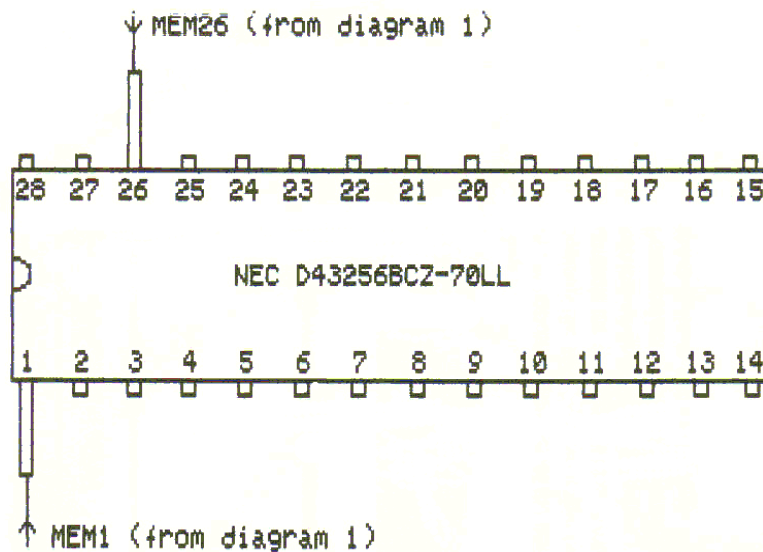
DIAGRAM 2

First of all, let me say that it is not possible to fit the three chips on the ROMOX PCB in a similar way to the E/A GROM. There just is not enough room! I guess the solution as to how the circuitry should best be put together should probably be left to the individual's initiative. I can only suggest the two alternatives I have used, whilst, at the same time, making no special claim about their quality.

One possibility is to use a small piece of VERO board and build the circuitry shown in diagram 1 on it. After completing all the connections between the three chips, it would be necessary to fit suitable wires to make the connections to the edge connector (signals A3, A4, A5, A6, A7, A11, A12, A13, A14, A15, CLK, +5V, and GND) and to the memory chip (MEM1 and MEM26) before finally fixing the VERO board to the ROMOX PCB by either screws, or glue.

This method unfortunately guarantees that the new circuitry will prevent the fitting of the lid on the ROMOX cartridge. There is just too little space!

Another possibility is to glue the three chips pins upward in a row at the back of the module PCB (away from the edge connector), after having previously cut their pins very short (especially short on the side close to the back edge of the PCB). It is then useful (especially if your memory is as bad as mine) to stick a label on the belly of each chip and to mark on it the pin number relative to each pin. You must note that, since the chips are now upside down, the numbers proceed in a clockwise sequence, instead of an anti-clockwise one.

All the necessary connections can then be made, not without some difficulty, between all the relevant pins as before. This latter method ensures that you can again snap the lid shut on your ROMOX module, but it is definitely more fiddly when it comes to soldering the wires on.

The only two discrete components that are required are the resistor, connecting pins 16 and 15 of the 74LS259, and the capacitor connecting to pins 15 and 8 of the same chip.

It is important to remember to disconnect pins 1 and 26 of the memory chip from ground before making the connections to pins 6 and 3 of the 74LS32 respectively.

Diagrams 1 and 2 are drawn according to the usual conventions. Where wires simply go across each other at right angles no connection is implied, while t-junctions obviously mean a connection. Arrows

on the end of a wire simply mean connection to other circuitry; near the arrow-tip an indication of the particular connection appears.

I hope this is all reasonably clear ("Clear as mud" I hear you say). Feel free to contact me if you are unsure or if you have any problems, and I may be able to solve them for you. By the way, I have one new 32Kb SUPERCART ready made and tested, on which the price is negotiable, depending on whether you expect me to fit the necessary chips, or simply to supply the ready circuitry (which would, of course, include the three 74LS* chips, but not the memory or the E/A GROM).

Good luck with the project!
Feedback will be appreciated.

Here's a listing for you to type in…

```
10 REM * * * * * * * * * * * * * * * * * * * *
11 REM (C) 1983,1997 BY
12 REM CARSTEN ZIEPKE
13 REM IT IS NOW FREEWARE
14 REM FELL FREE TO COPY IT
15 REM IF YOU LIKE IT SEND
16 REM ME AN EMAIL OR A POST
17 REM CARD OR WHAT YOU WANT
18 REM cziepke@ki.comcity.de
19 REM WESTRING 268
20 REM D-24116 KIEL
21 REM GERMANY
22 REM * * * * * * * * * * * * * * * * * * * *
23 REM
100 CALL CLEAR
110 CALL SCREEN(2)
120 PRINT:::::::::::::::::::::::::::::::
130 FOR I=1 TO 14
140 CALL COLOR(I,5,16)
150 NEXT I
160 PRINT TAB(6);"TUERME VON POMPEJI"
170 PRINT:::
180 PRINT "     (C) CARSTEN ZIEPKE
5.10.1983"
190 PRINT:::
200 FOR I=1 TO 600
210 NEXT I
220 PRINT " SCHON ZU ZEITEN POMPEJI'S   SPIELTE
MAN DIESES SPIEL. "
230 PRINT " ABER NICHT MIT EINEM
TI99/4(a),SO WIE SIE!"
240 PRINT:" SIE WERDEN GLEICH DREI PO-  DESTE
SEHEN.AUF DEM 1.SIND  SECHS KASTEN AUFGESTAPELT."
250 PRINT " IMMER DER KLEINERE AUF DEM   GROESSEREN
KASTEN. "
260 PRINT
270 PRINT " ES GIBT NUR EINE REGEL AUF  DIE SIE
BEIM UMSTAPELN      ACHTEN MUESSEN:ES DARF NIE"
280 PRINT " EIN GROESSERER AUF EINEM   KLEINEREN
KASTEN SEIN!"
290 PRINT::
300 CALL KEY(0,K,S)
310 IF S=0 THEN 300
320 PRINT::"  FOR INTERNATIONAL USER"::
```

```
330 PRINT "YOUR GOAL IS TO TRANSFER THEBOXES FROM
THE LEFT TO THE   RIGHT. THERE IS JUST ONE"
340 PRINT "RULE! YOU COULD NOT PUT A    BIG BOX ON
SMALLER ONE."
350 PRINT "IF YOU HEAR A LOW TONE YOU   HAVE TO
PRESS THE KEY OF THE"
360 PRINT "TOWER FROM WHERE YOU TAKE    THE BOX (
1-3 ). AND IF YOU"
370 PRINT "HEAR A HIGH TONE YOU PRESS   THE NUMBER
OF THE TOWER    WHERE YOU WANT TO TRANSFER  IT.
HAVE A NICE TIME !"
380 PRINT::::
390 CALL KEY(O,K,S)
400 IF S=O THEN 390
410 CALL CLEAR
420 CALL CHAR(100,"OOOOOO3C3COOOOOO")
430 CALL CHAR(101,"OOOOOO7E7EOOOOOO")
440 CALL CHAR(102,"OOOO7E7E7E7EOOOO")
450 CALL CHAR(103,"OOOOFFFFFFFFOOOO")
460 CALL CHAR(104,"OOFFFFFFFFFFFFOO")
470 CALL CHAR(105,"FFFFFFFFFFFFFFFF")
480 PRINT:::::::::::::::::::::::::::
490 PRINT TAB(5);"*******************"
500 PRINT TAB(5);"*TUERME VON POMPEJI*"
510 PRINT TAB(5);"*******************"
520 PRINT:::::::::::::::
530 REM PODESTE ZEICHNEN
540 CALL HCHAR(18,5,95,5)
550 CALL HCHAR(18,14,95,5)
560 CALL HCHAR(18,23,95,5)
570 CALL HCHAR(19,4,47)
580 CALL HCHAR(19,13,47)
590 CALL HCHAR(19,22,47)
600 CALL HCHAR(20,3,47)
610 CALL HCHAR(20,12,47)
620 CALL HCHAR(20,21,47)
630 CALL HCHAR(19,10,92)
640 CALL HCHAR(19,19,92)
650 CALL HCHAR(19,28,92)
660 CALL HCHAR(20,11,92)
670 CALL HCHAR(20,20,92)
680 CALL HCHAR(20,29,92)
690 REM ZEICHNE DIE KAESTEN
700 CALL HCHAR(12,7,100)
710 CALL HCHAR(13,7,101)
720 CALL HCHAR(14,7,102)
730 CALL HCHAR(15,7,103)
740 CALL HCHAR(16,7,104)
750 CALL HCHAR(17,7,105)
760 FOR I=1 TO 100
770 NEXT I
780 CALL HCHAR(23,10,32)
790 CALL SOUND(10,220,O)
800 CALL KEY(O,K,S)
810 IF S=O THEN 800
820 CALL HCHAR(23,10,K)
830 K=K-48
840 IF K<1 THEN 800
850 IF K>3 THEN 800
860 FOR I=1 TO 100
870 NEXT I
```

```
880 CALL HCHAR(23, 20, 32)
890 CALL SOUND(1O, 44O, O)
900 CALL KEY(O, E, T)
910 IF T=O THEN 900
920 CALL HCHAR(23, 20, E)
930 E=E-48
940 IF E<1 THEN 900
950 IF E>3 THEN 900
960 IF K=E THEN 79O
970 DATA 7, 16, 25
980 FOR I=1 TO K
990 READ ORT1
1OOO NEXT I
1O1O RESTORE
1O2O FOR I=1 TO E
1O3O READ ORT2
1O4O NEXT I
1O5O RESTORE
1O6O ZUEGE=ZUEGE+1
1O7O FOR I=12 TO 17 STEP 1
1O8O CALL GCHAR(I, ORT1, X)
1O9O IF X<>32 THEN 112O
11OO NEXT I
111O GOTO 76O
112O FOR II=12 TO 17 STEP 1
113O CALL GCHAR(II, ORT2, XX)
114O IF XX<>32 THEN 116O
115O NEXT II
116O IF XX<>32 THEN 118O
117O XX=15O
118O IF X>XX THEN 76O
119O CALL HCHAR(I, ORT1, 32)
12OO CALL HCHAR(II-1, ORT2, X)
121O CALL GCHAR(12, 25, TTT)
122O IF TTT<>1OO THEN 76O
123O CALL CLEAR
124O PRINT:::::::::::::::::::::::::::::::::
125O PRINT TAB(5);"*******************"
126O PRINT TAB(5);"*TUERME VON POMPEJI*"
127O PRINT TAB(5);"*******************"
128O PRINT:::::::
129O PRINT "UM DIESES SPIEL ZU GEWINNEN, BRAUCHTEST
DU:";ZUEGE;" ZUEGE."
13OO PRINT
131O PUNKTE=3OOO-ZUEGE*1O
132O PRINT "DAS SIND:";PUNKTE;" PUNKTE."
133O PRINT:::::
134O CALL KEY(O, RR, TT)
135O IF TT=O THEN 134O
136O CALL CLEAR
137O ZUEGE=O
138O PUNKTE=O
139O GOTO 48O
```

Coming in Next issue...

An excellent TI emulator to knock PC99 off of its perch!

It costs £0.0000000000!!!!!! J

A full review of the 20th TI-Treff in Venlo.

More about the 2-day Workshop in Stanton St. John, including a re-print of the map, plus a full demonstration of the above emulator at the workshop!

We should find room to finally start the hall of fame feature that we mentioned in the last issue.

There will certainly be room for another listing to type in, and there might even be room for details of BOTH of the compact flash interfaces available for the TI.

Coming soon there will also be a full design history of the TI Speak & Spell!!!!