CALL MYARC

The long winter ended Spring arrives and the ugly duckling is now a . . .

GENEVE 9640

WHAT IS CALL MYARC?

CALL MYARC is a quarterly cooperative effort between Myarc Inc., the manufacturer of the GENEVE 9640 and quality peripherals for the 99/4A computer, and the Dealers, software Authors, User Groups, and End Users of MYARC products.

We will be bringing you up-to-date information concerning new products, updates, problems and their solutions, user comments, questions and answers, articles of technical and non-technical nature, by the software and hardware professionals who are designing products for your future.

In future issues we will be reporting new software and hardware currently under development. We will be asking users and user groups for their comments and ideas in the design of future products and updates.

We will be featuring articles about the languages available for the 9640; MYARC Advanced Basic, 9995 Assembler, Pascal, Forth, C, Logo, and other languages as they become available.

Meet the GENEVE 9640

Features Include:
- Same instructions set as 9900 plus 4 new ones
- 3 to 4 times faster than 9900 in the 99/4A
- Pipelined processor (u-processor does several functions at a time).
- 32K high speed no wait state RAM
- 512K of CPU RAM (user configurable between CPU-RAM, RAM-DISK, or PRINT-SPOOLER)
- Expandable to 2 MB with MYARC Memory Expansion Cards
- In 99/4A mode 64K between GROM and 16K for cart ROM

Advanced Video Processor V9938:
- Software compatible with TMS9918A used in the 99/4A
- Uses 46 registers for high speed hardware graphic commands
- 7 modes of graphics operation
- Commands include DRAW, FILL, SEARCH, MOVE
- True bit mapped graphics operation
- Both composite and analog RGB outputs
- Color pallet of 256 colors on the screen at one time, in the 256 x 424 mode or 16 colors in the 512 x 424 mode
- Comes with 128K bytes if VDP RAM

Real Time Clock:
- Gives you or your program instant access to date and time
- Battery backup

Sound Chip:
- Compatible with 99/4A (3 tones, 1 noise).

Mouse Interface:
- Hardware in the card allows for the MYARC mouse to be connected directly to the GENEVE
- Basic language support for the mouse, using standard mouse commands

Standard Joystick Interface:
- Joystick is 99/4A compatible

Hardware Compatible:
- Floppy disk controllers include Myarc, TI, and Corcomp.
- RS232 from above venders also
- Horizon RAM disk.

Software Support From MYARC:
- Myarc DOS (similar to MS-DOS 2.1)
- Myarc Advanced Basic
  - Compatible with TI Extended Basic
  - Supports all modes of VDP and 80 columns
  - Supports windows
  - Easy Mouse Commands
  - Combined text and bit mapped graphics modes
  - Drawing commands such as CIRCLE, RECTANGLE, etc.
- TI Writer upgraded with more memory and 80 columns
- Program to save cartridges to and run them from disk.
- MICROSOFT MULTIPLAN patch for increased memory and 80 columns.

Software Support From Vendors:
- Pecan Systems
  - UCSD Pasal (free w/system)
  - UCSD Languages at extra cost
    FORTRAN 77
    COBOL
    PASCAL
    BASIC
  - Plus thousands of other applications ranging from pig management to office management to Home Education.

- Inscebot
  - TI Artist
  - Macpaint equivalent
- Databiotics
  - The music shop
  - Super-Super Forth
  - Super Word
  - The Terminal connection
  - The professional Business Assistant
  - Macro Assembler
  - Pilot
  - Lush Brush
- Pike Creek
  - General purpose accounting software
- Ryte Data
  - General purpose accounting software
- Paul Charlton
  - Fast Term 2
- Clint Pulley
  - Big C Compiler
- Great Lakes Software
- AND MANY MANY MORE!!!!

A DESCRIPTION OF THE GENEVE COMPUTER WITH RELEVANT COMMENTARY REGARDING WHAT IT MEANS TO US ALL
Copyright 1986 — Chris Bobbitt

At its introduction, the MYARC GENEVE computer will be among the most advanced "personal computers" in history. It is more powerful than many minicomputers, and is available at a price that would have been unheard of 3 years ago.

The following is a description of some of the capabilities of this remarkable device.

MICROPROCESSOR: The TMS9995 CPU is 5 to 6 times faster than a TMS9900, the processor found in the TI99/4A. This processor is only slightly slower than the 68000 CPU, yet is much simpler to use, more accurate mathematically, and contains a smaller instruction set. The advantages of this smaller instruction set is an article in itself. Suffice it to say that this technique is getting a lot of attention in programming circles.

MEMORY: The standard GENEVE Computer comes with 640K of RAM. This is expandable to 2 Megabytes using MYARC memory expansion cards. A MYARC 512K card can be made to work with the GENEVE with simple modifications. The MYARC 512K card's memory may be directly accessed by programs.

GRAPHICS: The GENEVE uses the Yamaha 9938 graphics processor. The 9938 processor was designed by Texas Instruments and Microsoft Incorporated. The computer world will discover this chip and its capabilities much in the same way that they proudly announced 16 bit computing for microcomputers, years after TI had introduced the TI99/4A. This graphics processor supports a variety of different modes for graphics and text.

TEXT: The GENEVE supports both 40 and 80 column modes. The 40 column mode is similar to that of the 99/4A, so none of your current word processing software is obsolete. However, text, foreground and background colors may be any of 512 colors. 256 patterns are available for redefinition. One of the 80 column modes is the same, while another supports blinking text and multi-color text. Some limitations apply, but this permits programmers of the system to use many of the advanced human factors graphics techniques just now being developed. The use of color to impart information, much in the nature of peripheral vision can make word processing tasks was well as the initial learning process easier.

Your GENEVE computer will be able to keep up with this emerging technology for some time. Indeed the rich resources of the TI programming community may well result in some breakthroughs in graphics presentation. It is reasonably well known that some organizations in the community are working hard in this area. Since each of these various screens occupies very little memory of the 128K of standard Video RAM on the GENEVE, up to 32 screens of text can be stored in memory at once. All of this information is directly addressable by the programmer. This bodes well to provide a rich environment for the system and applications programmer and thus the user.

GRAPHICS: The GENEVE supports every text mode of the 99/4A, as well as many new graphic modes that use much of the available memory. One of the more interesting modes supports a resolution of 256 by 212 pixels. Each pixel can be any of 256 colors. This mode also supports multi-color sprites. Each pixel row of the sprite can be any of two colors. Another interesting graphics mode supports 512 by 424 pixels with each pixel any of 16 colors. The on-screen display of a maximum of 16 different colors can be selected from a pallet of 512 colors. This mode is the same resolution as the Apple MacIntosh computer, yet the system still finds the capability to support sprites, which the MacIntosh does not. The 9938 chip has built in commands for line drawing, block moves and copies at hardware speeds. The benchmark for graphics systems, the Commodore Amiga, can only draw lines half as fast as the 9938 and rectangles nearly so. This bodes well for designers of presentation graphics and animation systems for everything from simple business presentations to television commercials!

INTERFACES: The GENEVE has a number of ports. For video, there is a port for an analog RGB monitor. The analog RGB monitor is more advanced than the digital ones used by the TI Professional Computer in that it allows virtually an infinite range of colors on the screen. Texas Instruments used the quality of the TI PRO monitor as a major component in its "Dare to Compare" campaign against the inferior IBM PC display system. Many monitors display the power of the GENEVE quite well, and are readily available. However, an additional port permits the use of your existing TI99/4A video monitor. Therefore, your current equipment is not obsoleted by the new machine, allowing you the luxury of leisurely getting the best price for your existing monitor and cutting the best possible deal for your upgrade. The GENEVE also supports the MYARC mouse.

Your 99/4A console can be used as a stand alone device with the purchase of the GENEVE. The GENEVE comes equipped with an IBM style keyboard. Other keyboards, costing from $50 to $500 will also work just fine. Since the GENEVE replicates the functions of the console, you will only need the expansion system or one of the inexpensive expansion kits.

A multi-function port permits even more access to the GENEVE. While labeled as being for the MYARC mouse, mentioned earlier, it also can support sophisticated applications inputted from both exotic and common equipment. A video digitizer, for instance. Pictures taken from a video camera can be fed into the system. A digitizing tablet, which turns the GENEVE into an elaborate data collection system or a component of a computer aided design/manufacturing/engineering (CAD/CAM/CAE) system is fully supportable, given proper software. Light pens are of course appropriate input devices as is information from a video cassette recorder or a video camera. Indeed, with external converter devices available on the market, you can pipe in television signals and enjoy crisp resolution and vibrant colors never seen before from a commercial television set, thus putting your RGB monitor on overtime.

DISK DRIVES: The GENEVE, when utilizing a MYARC Disk Controller, will be capable of transferring up to 1.2Mbits/sec from disk to memory — or roughly twice as fast as any computer for less than $10,000.

When used in conjunction with the MYARC Hard Disk controller, this speed goes up to 5Mbits/sec (5 MILLION baud!), which is fast enough to do full-screen real-time animation with 10 screens displayed per second (as opposed to the average movie which displays 8 pictures per second to achieve apparent motion). Again, this capability is far beyond what comparably, and much higher priced machines are capable of doing. This is accomplished by utilizing an area of RAM in the computer (called 0 wait state Static RAM of which 32K is available in a standard GENEVE) as temporary storage, along with the very modern WDS1772 disk controler microprocessor.

HARDWARE COMPARISONS: To put this in perspective, compare the GENEVE to other computers. The GENEVE comes with 640K of RAM, equivalent to a fully configured IBM PC XT. This memory is expandable to 2 megabytes, twice the standard memory of an Atari 1040 ST. The Atari ST, of course, is one of the more popular "non IBM machines" on the market. The Atari ST is the fastest microcomputer available in its price range. The GENEVE is roughly equivalent. The makers of the GENEVE have gone to the extra expense of installing special purpose chips to handle, among other things, input from disks, light pens, and other devices. In a similar vein, these special purpose chips handle output to screen, disk and elsewhere. And what about graphics? Again expensive special purpose redundance pays off. Therefore, in graphics, input and output, the GENEVE runs circles around the Atari ST. The GENEVE deploys eight times as many colors as the Commodore Amiga. The GENEVE is the superior machine in these respects. The GENEVE, unlike the Amiga and the IBM PC AT, supports graphics and a 'true aspect' ratio. This is the superior form, and gives higher resolution through the use of square pixels, the tiny dots used to give your computer screen, even your television, its color and appearance of depth.

The GENEVE rates highly as a smoothly upgradeable machine. It obviously will be compatible with the newly developed MYARC hard and floppy disk controller card. In disk drive support, the GENEVE with the MYARC disk controller card will defeat the IBM PC AT. Three 134 megabyte hard disks can be supported with this upgraded configuration, not to mention that the same scheme will control four (or less) double sided QUAD density floppy drives of the conventional 5-1/4 inch size. The drives that use the new plastic bound 3½ inch disks are supported as well. Knowing the market, the GENEVE makers realised they needed a system that would obsolete gracefully, as has the 99/4A.

Features of the 99/4A which still challenge the marketplace are retained. An example is the 99/4A's well known device independent operating system. Virtually any peripheral can be attached, unlike almost all other computers including those costing thousands. Device independence is a feature you (the 99/4A owner) have purchased years ago and one that should not be discarded in the name of progress. Therefore, the GENEVE is superior to most every microcomputer in graphics, speed, memory capacity, and in versatility.

A full blown GENEVE system could contain a GENEVE computer, a MYARC HFDCC model hard and floppy disk controller, a MYARC RS232 card, plus a 3 slot expansion kit, linked to two full blown 720 kilobyte floppy disk drives and a high resolution analog RGB monitor. If bought all at the same time, using all new components, your system could cost less than $1,000. One of the finest features of such a system is that it can and probably should be acquired incrementally, particularly if you currently own an expanded 99/4A system. For a machine of this class, this is an incredible price. The Atari 1040 ST is well known as the first computer that cost less than one dollar for each one thousand bytes of memory, new. The GENEVE may be the first machine to drive that cost down to fifty cents per thousand.

SOFTWARE: The GENEVE will come bundled with a new version of Extended BASIC on disk which is fully 6 times faster than TI Extended BASIC. Also included will be a MS-DOS like operating system. The package is called "MS-DOS like" because the commands used will be very close to MS-DOS.

However, the internal workings of the system will not resemble nor be compatible with MS-DOS. This will be a boon for those who have had to struggle through learning MS-DOS at work or on another machine. In the package also will be an 80 column version of TI-Writer with a larger memory.

A number of other products specifically designed for the GENEVE will be available at or near the release of the GENEVE. A number of "C" compilers will be available by all expectations. C is a very popular language on 32 bit machines and is now beginning to appear in microcomputers in the last few years. Some business software will be readily available. UCSD Pascal, actually a language within its own operating system, will also be standard. Software developed on many machines, including the IBM PC, Apple, and others which use this system, will run without modification on the GENEVE.

The new GENEVE software will allow users to set up directories as an aid to managing multiple files. A software RAMdisk will also be available, where the user can deal with a notional or in-software emulation of a disk. All interaction on this RAMdisk will be in memory, thus will operate at extremely high speed. Print spoolers will be available. People still pay $200 for print spoolers, which merely are hardware systems, and software, that fool both the computer and the printer. The printer is wired to signal the computer to stop sending data while the printer repositions the print head, or rolls up the platen. Meanwhile the computer is burning up thousands of cycles waiting for the printer to get ready to receive data again. A spooler is nothing but an ever ready printer to the computer and a patient computer to the printer. The job is transmitted to the spooler in a second or two and you are ready to go again while the printer clunks away.

TI BUSINESS MACHINES: The GENEVE is assembly language compatible to the TI minicomputer world, and awaits a member of that community to make that software run.

There is one silver lining in the "Perils of Pauline" development path of the GENEVE, so fraught with delays. Time to think about the new arrival has been purchased with the sweat of the developer in a process which would normally have been extremely secret and quickly sprung on the unsuspecting community with little warning.

NEW OFFERINGS: One new company has been started specifically to develop GENEVE software. A true multi-tasking operating system is among the goals of this firm. Multi-tasking to a user means that several programs can be run at the same time. Multi-tasking is at the heart of programs such as Sidekick for the IBM where various panels, or windows are pulled down to allow notes and other activities to take place.

Yet another goal for this new developer is a macro-assembler. Maco-assembler are small utility programs that can be strung together to achieve a variety of goals. In the minicomputer world, programmers adroit in the macros of their particular machine rarely had to write such original code to achieve powerful results. This capability will soon arrive for you with the GENEVE.

Soon after shipments of the GENEVE begins, BASIC and Pascal compilers will be made available by this startup firm. A compiler may not be a familiar concept to all who read this, though it is simple to pick up. When your 99/4A receives the run command, it makes up and "interprets" the program you have told it to run; Every single time. You probably are aware that assembly language is faster. The reason for this is that it is closer to machine language and therefore requires minimal "interpretation." BASIC, however, along with a host of other languages is not that close to machine language. Easier to remember and use, but requiring some form of intervention. The interpreter is often used for BASIC. While it gives instant feedback, an interpreter is slower than a compiled program which is a machine or assembly language program. You write the program as usual, then run the program through a compiler.

That program compiles a collection of assembly language or machine code commands. That "compilation" is what you then use when you need that program. The compilation is much faster, almost indistinguishable from a program written in assembly language. The 99/4A only recently got an example of a compiled BASIC and a compiled C. If you have yet to experience the utility of compilers, you will certainly enjoy the GENEVE. The increased memory will, of course, make these compilers superior in performance to anything currently on the 99/4A.

A HOST OF GENEVE SPECIFIC PROGRAMS are to come. Lou Phillips of MYARC has estimated that four to five years of effort will be needed to complete the full sweep of programs needed to truly tax the GENEVE system and the chips associated with it. During that period, if a new design comes along, the card, not the entire structure can be modified. Almost immediately however, terminal emulators, word processing programs that support such sophisticated typesetting concepts as proportional spacing will begin to arrive. Potential new products for the GENEVE include databases, spreadsheets, and paint programs.

The GENEVE is one of the most remarkable computers ever introduced. A technical marvel, not a ripoff or anyone's clone. We are indeed fortunate that it has been designed to take advantage of the tremendous capability of the TI99/4A ... and its users. It should appeal to everyone, either as a first, a second, or third computer.

WHY GENEVE?
By: Tom Kennedy

As I write this, it was announced today that the one remaining component of the MYARC 9640 Computer has finally arrived. The first shipment of the "Gate Array" chip, a central component, was defective, bringing the production to a halt. Now that these parts have arrived, shipment will proceed shortly.

So who cares? Lately, I have heard a number of people comment, upon hearing more news on the forthcoming "new machine", that "why should we care about some new machine? Let's hear more about the machine we have". While this is a valid point, in that one should learn as much as possible about the amazing capabilities of the 99/4A, or rather the 9900 CPU, it is this in-depth knowledge which eventually leads many "hobbyists" to find that with all that makes the 99/4A shine, there are a few shortcomings which can appear as "brick walls" when you least expect. Yes, I hear cries of "TRAITOR!", but let's be honest, NO computer is perfect for every need, and each excells in certain areas.

I have owned a /4A for four years, and an expanded system for three years. In that time, I have "mastered" the Extended Basic language, the TI-Writer Word Processor system, and the field of telecommunications on my TI. In the past year, I have had the luxury of working with an office full of exotic IBM-PC compatibles, and on occasion a Macintosh computer. It is through the use of these sophisticated (and expensive!) machines that I have learned more about the more technical side to computers, the "behind-the-scenes" aspect.

This increase in curiosity and knowledge has been a two-edged sword: On the one hand, I have come to respect the genius of the designers of the 9900 CPU, and the ease-of-use and simplicity of the /4A system. But also, I have encountered the areas where the /4A falls short in capability, or rather, the capability to do some of the things I need it to do. Advanced graphics; extended memory; increased speed; software availability. While these are important features to me, I cannot justify the expense of buying another complete computer system, and the further expense of the software to run it. Even if I could afford such luxury, the IBM's have almost as many shortcomings, although in different areas, and the "perfect" computer would still be out of reach.

There are many others out there who share my frustration, as evidenced by both the number of entrepreneurs investing in risky ventures to create hybrid computers and components, and also the public who clamor constantly for more of the very same. While many people own more than one computer system, including more than one TI system, most of us simply appreciate the "almost status" of our TI's, and realize we will probably have to "make do".

Then again, if I could have all the advantages of this fantastic machine, combined with some of the niceties of the other systems, I'll jump at the chance! I am not turning my back on my TI by doing so, I am FORTIFYING my use of it.

Remember, any hybrid machine such as the MYARC 9640 is still, under all the new clothes, a TI-99/4A, in as much as the "Brain" of the computer, the 9995 CPU, is simply an UPGRADE to the 9000, not a REPLACEMENT. The same goes for the 9938 VDP chip, and upgrade to the 9918 found in the /4A. Now, I know, this is a little like saying "This is my grandfather's axe, though I've replaced the head twice, and the handle three times", deep-down I still feel its the old TI.

So, why bother with these new machines? Because they stimulate the growth of our corner of the computer world, and because they are the future of this machine, the future TI 'might' have created had they had the foresight and conviction to carry through. An increased interest in any new products does not necessarily ignore the old, but can foster new attention.

How many of you car buffs want to drive around in a tired old '65 Ford (a fine car when it was new) but would LOVE to own a mint condition '55 Cadillac).

ATTENTION USER GROUPS

The editorial staff of **CALL MYARC** would like to be placed on your mailing list as well as place you on ours. Mail your newsletters and requests for our newsletter to:

CALL MYARC
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Basking Ridge, New Jersey 07920-1014

INTRODUCING THE PECAN POWER SYSTEM VERSION 4.21 UCSD PASCAL

By: Jay Holovacs

The Pecan Power System [Version 4.21] will be available on the MYARC 9640 computer. This complete development system includes not only the famous UCSD Pascal Compiler, but access to other compiled languages including Modula 2, BASIC and Fortran. Additionally extensive support software includes editor, file management system and utilities and application programs such as spreadsheets, word processors/text formatters, etc. Because of the high compatibility of the Power System, programs written on and for a wide variety of computers will run on the GENEVE. This provides an extensive base of both commercial and public domain software early in the life of this new machine. The Power System provides a sophisticated runtime environment which includes support of library modules, native code, and a form of memory management that allows running of large programs beyond the physical memory size of the machine. An earlier version of the P-system was utilized in the P-code card formerly supplied by TI for the 99/4A, however, it was severely limited by the small memory and other hardware constraints of the /4A. Advantages of the new GENEVE implementation are:

1) Use of multiple code pools and the maintaining of most code outside of the main stack/heap area keeps code segment moves to an absolute minimum. This results in a large speedup at runtime and in many cases can reduce the number of disks that must be online during a program run.

2) No special (and expensive) hardware is required.

3) Separate runtime package is in software, users interested only in running application programs need only obtain this component. [except where special libraries are required].

4) P-code interpreter is written directly in 9995 assembly language; coupled with the 12 MHz clock and special high speed workspace provides for very fast execution speed.

USUS INVITES MEMBERSHIP

(U)CSD Pascal (S)ystem (U)ser's (S)ociety

USUS is the society devoted to the users of the UCSD P-system. Its goal is to promote and influence the development of the UCSD P-system and to help users learn more about their systems.

USUS supports Software Exchange Library from which members can obtain software source code for a nominal reproduction charge.

Developed to facilitate software portability, the UCSD Pacal System is the most widely used, machine-independent software system. Pascal was its principal language but now other languages such as Pilot, Lisp, Modula-2, FORTRAN, and BASIC are available.

For further information:
ON COMPUSERVE: type 60 MUSUS.
Applications can be downloaded, or write to:

USUS
P. O. Box 242
Kensington Station
Brooklyn, N.Y. 11218

Mention the MYARC GENEVE 9640 on your application.

NOTEWORTHY

It has come to our attention that a number of bulletin boards around the country have been creating special download areas for MYARC Extended Basic II. If you know of one, please let us know, so we can share the information with other MYARC users.

FOR THE FUTURE

We are anxious to receive input from you regarding our first issue, suggestions for future issues, articles and tutorials concerning the use of MYARC products, tutorials in MYARC languages such as Extended Basic II, or MYARC Advanced Basic, etc., Advanced Graphic capabilities, new commands you would like incorporated into current or future languages, new capabilities, software you would like to see written, etc. In short, we would like to offer a forum for communication between all aspects of the MYARC WORLD.

Please address all correspondence to:

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Compuserve 73125,521

MYARC SUPPORT ORGANIZATION FORMED

The formation of a new support organization has been announced. Its aim is to respond to the emerging interests and needs of the MYARC Computer user. Its initial goals are as follows:

1) To facilitate the development and distribution of a public domain software library.

2) To provide a technical information forum.

3) To establish a User database bringing together people with similar interests.

4) To encourage the creation and distribution of low cost user written software.

Your support and input are invited. If you are interested in participating, or would like further information please contact: Jay Holovacs via Compuserve EMAIL ID # 74756,413

or write to: Don Iverson
                   MYARC SUPPORT GROUP
                   483 Valley Road
                   West Orange, New Jersey 07052

NOTE: The MYARC Support Group is not affiliated with MYARC, Inc.

INTRODUCING
ACCESS ENGINEERING, INC.
AND THREE SIGNIFICANT PRODUCTS

DESCRIPTION: AEInc was founded in the spring of 1986 specifically to produce products for the newly devloped MYARC GENEVE computer. The creation of this company and the associated risks is based on analysis that concluded that both the technology and the market potential of the new computer is significant. AEInc brings to the GENEVE marketplace not only the expertise of its founders and dealer network, but a development facility that already contains 6 microcomputer types along with a minicomputer based development system. AEInc has or are in the process of developing a series of professional level products to take advantage of the speed, memory and graphics of the GENEVE, which we, after careful evaluation believe to be a superior machine.

OUR FOUNDERS: Jim Horn, with the H. & R. Block firm, and the SYSOP (System Operator) on CompuServe for TI FORUM, a clearinghouse of TI information for members of the TI community. Jim has a BBA degree from Hardin Simmons University with studies in International Trade at the University of Texas. Jim's Masters in Computer Science work was with American Technological University and now with Florida Institute of Technology. Jim is also a graduate of the U.S. Army Systems Analysis School at Fort Harrison. He specialized in command and control systems and human factors while in the Army. Retired from the Army, Jim is a partner in a software firm, Disk Only Software, which caters to the 9900 computer based market.

RICHARD ROSEEN: A trained engineer and electronics patent examiner with the U.S. Patent Office, Washington, D.C. Richard is in a position that permits him to keep abreast of innovative technology on a day to day basis. Adversarial technology is an aspect of Richard's work, where hard facts must be marshalled to support each new step forward in terms of unique art. Richard has designed numerous peripherals and software products, many for the 99/4A. Years of experience with mini and mainframe computers rounds out Richard's hardware and software technical expertise.

CHRIS BOBBITT: Prior to being named the "Software Producer of The Year 1986" by Computer Shopper Magazine, Chris wrote literally hundreds of articles. Most of these articles in magazines and newsletters concerned technical and popular aspects of computing with the 9900 family of computers. CEO of Asgard, the firm named by Dr. Ron Albright, Chris has an artistic bent, and has blended these talents into the production of award winning computer art, some featured on the covers of computer magazines. Asgard is currently the 7th largest 9900 based software maker in the world. Chris is no stranger to the mini and mainframe computer world, having developed computer requirements specifications for a government agency, the U.S. Naval Research Laboratory. This work environment, with its own Nobel Prize winner, has supplemented Chris' computer science studies at the University of Maryland. The U.S. Navy Research Laboratory of Washington, D.C. is a sister laboratory to the lab which discovered the location of the Titanic. Chris has been with them for four years.

GOALS: AEInc in the coming months, will produce two operating systems, four computing languages, and numerous utilities, business packages and applications for the GENEVE. AEInc will assist in making the technical capabilities of the GENEVE better known by supporting the GENEVE Users and Technical Society with technical and research papers, using the well known writing talents of Chris Bobbitt, along with the technical expertise of Richard Roseen. The Journal of the GENEVE, or JOG will be a major beneficiary of these efforts. Most of the articles will be posted as they are prepared on telecommunications networks and bulletin boards around the world. A printed supplemental newsletter by AEInc is being discussed.

INTRODUCING ADOS
AEI Disk Operating System

INTRODUCTION: ADOS is an advanced, modern, disk-oriented operating system that provides a comprehensive set of user services, resource management features, facilities and requests available to program operating under ADOS control.

DESCRIPTION: Like popular operating systems in the expensive microcomputing world such as MS-DOS and UNIX, ADOS supports a large comprehensive library of utilities. These include an editor, assembler, file management utilities, a smart linker, a BASIC interpreter, file compression utilities, and more. The smart linker is capable of resolving all references and declarations as well as supporting linked libraries of routines.

Unlike many operating systems, ADOS permits full "wildcards" at all prompts. A wildcard in operating a system parlance is the ability to allow the operator to specify an incomplete or imprecise search specification of the item, such as a file, with a symbol being substituted for the remaining characters. Other available capabilities will be such minicomputer like features as mnemonic based command names, a complete set of file, disk and screen input output utilities available to the programmer as well as powerful debugging and diagnostic utilities, along with access to all system functions. ADOS is the perfect operating system for the user, programmer, and the systems designer.

ADOS frees the talented users of the 9900 world to enter the world of the "Value Added Reseller," marketing to profitable vertical markets as recognised as the stand alone word processing user, or as exotic as any custom business or scientific application imagined. ADOS can be easily modified for a particular vertical application. Because user programs can interface with all operating system resources and utilities with an easy to understand, consitent protocol, user shells are as easy to write as any functional program.

A unique file management approach gives the ADOS, by design, a reliable environment, with file loss greatly reduced while disk transfers work faster.

COMPATIBILITY: The power of ADOS is not bought at the cost of compatibility. A complete library of both 99/4A and commercial Texas Instruments DNOS (a mature minicomputer system) based applications are compatible. This suite of capabilities include utilities, business, entertainment and educational software. ADOS will DIRECTLY load library files from machines that support these operating systems, thus opening a vast library of documented and tested software to the user at minimal expense and conversion effort. Many of these products could be marketed to established professional users used to paying many times the going rate for similar products.

AVAILABILITY: This operating system requires a MYARC GENEVE computer, and a single disk drive. Available by March 1987.

INTRODUCING AMOS
AEInc MULTI-TASKING OPERATING SYSTEM

INTRODUCTION: AMOS is a general purpose multi tasking, multi user operating system for the GENEVE computer. It is upwardly compatible with AEInc Disc Operating System (ADOS), and provides an even more comprehensive suite of functions to programmers, developers, and users running programs and packages under the control of AMOS.

DESCRIPTION: In addition to the wide variety of functions available in ADOS, AMOS provides a series of enhancements available only for thousands of dollars just months ago.

While using the highly reliable ADOS file system, AMOS also supports a hierarchial file system with directories and sub directories, along with file security and date stamping. Some of these features were unavailable outside of major mainframes and some minicomputers less than a year ago.

Sophisticated applications are supported by AMOS. AMOS is versatile in that it shields programs from hardware imposed restraints, and allows for predictable expansion in hardware capacities in coming years. It is conceivable for a value added reseller to maintain a fully functional support system for a vertical market, responding to continuing demands using inexpensive hardware, thus making that resellers product highly profitable for his customers. The system implements a byte addressable file space allowing individual files as large as 4 Gigabytes in length. AMOS provides a device independent interface for all system calls. AMOS therefore enables the developer to use new and innovative hardware as it becomes available.

In addition to the sophisticated housekeeping ability enhanced by the AMOS multi-tasking capabilities, making a multi user system using AMOS is an easy configuration task. AMOS is designed to be a networking operating system. Users can share data and PROGRAMS, with AMOS resolving concurrent resource demands automatically. Sophisticated data security routines can be designed at the user level, based on levels of access with individual, protected directories. In these ways, AMOS is similar to professional operating systems for mini and mainframe systems.

Multiple GENEVE computers in multi-mode networks may contain an unlimited number of loosely coupled systems. AMOS can grow with any application because the system manager can easily add services and utilities without modification of the system itself.

Like VMS on the DEC VAX computer, AMOS supports full background batch processing, even though these earlier systems sold thousands of units for tens of thousands of dollars. An example of background batch would be an internal software driven RAM disk and spooling utility, which in hardware addons still sells for hundreds of dollars in various configurations. Virtual memory constraints can be expanded through the use of external storage. It is truly a comprehensive operating system, so often described but seldom delivered.

COMPATIBILITY AND AVAILABILITY: AMOS is fully compatible with ADOS, thus protecting earlier investments. TI99/4A compatibility is assured with specific applications verified on request. AMOS, the TI Business Systems 300, 600 and 800 compatibility is assured. Some TI DX10 support is provided, offering an unequalled development environment. AMOS requires a MYARC GENEVE and 2 disk drives. 1Mbyte of RAM is recommended for applications involving more than 5 users. July 87 is expected availability.

INTRODUCING AC-BASIC
and AC-PASCAL

By Access Engineering, Inc.

AC-BASIC: AEI Compiled BASIC is a TRUE compiled BASIC, contrary to the limited packages that have proliferated in the MS-DOS world. AC-BASIC is a full, professional BASIC compiler that produces fast, optimised, 9900 assembly code.

This full featured BASIC is directly compatible with C BASIC on IBM and CP/M and will therefore compile literally thousands of business, utility and applications programs from those machines directly. A full compiler, untrammeled by schemes needed to optimise effort in large software houses is visibly more effective than some of the most widely used compilers in the industry today. Concentration of effort makes such focused products possible.

While compatible with CBASIC, AC-BASIC is not a clone, repeating well known problems of those versions. AC-BASIC is a complete enhancement of CBASIC, pushing software art further. AC-BASIC presents a professional alternative designed for large programming projects and professionally done smaller ones needing speed and optimization to make an attractive labor saving package for a selective ultimate user.

The tool kit coming with AC-BASIC presents an attractive package in itself in spite of the fact that AC-BASIC is the first full professional compiler for the 99/4A world. This modern compiler supports optional line numbers, multiple forms of commenting, redimensioning of arrays, common variable pools for chaining, and user defined subroutines with global and local variables. AC-BASIC has a full range of flow commands and numeric functions. AC-BASIC is so advanced that it even produces threaded code, a capability worth learning about since it makes object files up to 35% smaller by removing redundant code and compression.

AC-Pascal: AEI Compiled Pascal is a remarkable derivation of Pascal, one which easily can prove claims to besting more than one of the most popular Pascals on the market for any machine. "Concurrent Pascal" was initially designed particularly to be used in designing multi-tasking programs with concurrent processes. As such it is particularly well suited for designing powerful programs for use with the AEI Operating System (AMOS).

AC-Pascal is a full Pascal, closer in design and functionality to later fuller versions of Turbo Pascal (tm) than to UCSD Pascal. Conversion between these multiple forms of Pascal is relatively simple, and therefore vast amounts of program code is available. Like AC-BASIC, this compiler produces 100% 9900 assembly code that is optimised and threaded.

AC-Pascal is particularly suited for designing system software. In fact, both AEI packages ADOS and AMOS will be written with AC-Pascal.

AVAILABILITY: Both AC-BASIC and AC-Pascal are available exclusively for the MYARC GENEVE computer with at least 640K of RAM and a single disk drive. Both function equally well under ADOS and AMOS, both by AEInc AC-BASIC and AC-Pascal will be available by July 87.

For further information contact AEI, 9120 Rhode Island Ave., College Park, Maryland 20740. CompuServe messages may be directed to ID 76703,603.

WHERE RISC REDUCES RISK

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RISC stands for Reduced Instruction Set Code, a technique popularized at Stanford and MIT. The central idea of this concept is to replace the traditional very large assembly instruction set with the RISC. An example of the very large instruction set, the set that has everything, is the collection of commands or instructions for the VAX 11/780. The VAX supports over 300 different basic assembly codes. In contrast a RISC sports a very small instruction set with each instruction executing much faster comparably than similar ones on the large instruction set machine typically 1-2 machine cycles. In the other form of architecture each instruction is treated as a command to do something. The great variety of instructions is given to allow assembly programmers to do complex things at a low level. The RISC architecture assumes assembly programmers will naturally use the smaller instruction set as building blocks for more complex things.

DO BIGGER PROGRAMS RUN FASTER?

In this case, the answer is yes. Even though programs on RISC machines often contain many more instructions than similar programs on larger instruction machines, each instruction is faster, and the whole program runs much faster on the RISC machine.

HIGH LEVELS MEAN REDUNDANCY IN LANGUAGES

The higher level the language the more likely there will be a redundancy in the code. That instantly translates into inefficiency at execution time. It is a natural state in current programming technique that a lower level language runs faster. None of this is a criticism of higher level languages. Higher level languages are acknowledged to be the more efficient in terms of programmer time where speed of execution is not a critical issue.

TI THOUGHT OF IT FIRST

Universities define RISC machines as those having less than 150 instructions. Most microprocessors today (particularly modern ones such as the 68020 and 80386) have perhaps 140-200 or so instructions, TI, perhaps unconsciously, years ago arrived at the same conclusions, performance-wise, that the colleges made more recently. As a result the 9900 family is one of the few available sets for microprocessors which typically have less than 100 assembly instructions. All 9900 family microprocessors, in effect, out-RISC the RISC machines by a factor of 1/3, and are the closest thing to RISC technology in commercially available micro and minicomputers today.

THE COMPLETED SOLUTION CAME BEFORE THE CONCEPT

Texas Instruments, by the nature of the firm, has been less than forward in popularizing its original ideas. Not to make too harsh a judgment. All technological firms have found themselves in possession of concepts, techniques, and even systems with unrealized potential. The text handling capabilities of the microprocessor lay essentially dormant until IBM invented the marvelously descriptive term of "word processing." Apple is said to not have realized the value of "desktop publishing" until the concept was rubbed in their face by third party developers for the MacIntosh.

Risk is a constant consideration in the data processing world. The GENEVE, based on the 9900 family of microprocessors, is not without risk. However, the RISCless GENEVE has a mature RISC-like architecture which allows it to present a technical challenge to the most expensive personal computer systems on the market today. With a wide body of programmers familiar with its tested though revolutionary structure, we hopefully will be in for a nice software ride with this machine, as programmers add to the vast array of currently available routines and full system software.

TO ALL USER GROUPS

If your users group has not had the opportunity to see a demonstration of the GENEVE 9640 computer, and your group would like to do so:

Mail your request to: DEMONSTRATION
P. O. Box 140
Basking Ridge, New Jersey 07920-1014

Please include the name of your users group, the name of the person we would contact, complete address with zip code, telephone number with area code, and the best time of day to contact you. After receiving your written request, we will try to schedule a demo, as soon as possible. PLEASE, no telephone request.

NEW PRODUCTS FOR THE GENEVE 9640

The list of products under development for the GENEVE 9640 grows longer by the day. Besides development by many independent companies, MYARC has several exciting hardware and software products under development. Two software products, scheduled for completion in the near future, are of special interest to the GENEVE user.

My-Art; A mouse interfaced drawing program uses commands like, pencil, brush, circle, box, line, and zoom, to name but a few. In the full zoom mode (the screen can be zoomed in several stages), the entire screen may be filled by 12 of the 108,544 pixels that make up the screen in the non zoom mode. Art-work and graphics seen on but a few graphics based computers is now easy to achieve with the GENEVE and My-Art software. For ease of choice, 256 colors may be shown at the bottom of the screen. The 256 colors can be shown all at once, or in groups of 64 at a time, or removed from the screen altogether, when not needed. Availability from your dealer is scheduled for no later than June 1987.

My-Number Spread Sheet; the look and feel of the top selling spread sheet on the market today, and listen to this, if you are already using 123 on an IBM PC/XT or PC/XT clone, the data disk, used on the IBM or clone, can be read and worked by My-Numbers, changes made, saved back to disk and reused by the IBM or clone. My-Numbers is in the Beta test stage of development and it is estimated it will take from 120 to 150 days to become available at your dealer.

We will cover these two pieces of software in more detail and announce more new software and hardware in the next **CALL MYARC.**