The Bally Arcade! A great video game becomes a great computer!

When the Bally Arcade was designed 4 years ago the purpose of the project was to create the most versatile and entertaining interactive video machine on the market. And you know what? After all this time it still remains unsurpassed by any comparably priced piece of hardware on the market! The industry's most complete line of ROM cartridge software includes the Bally classics: Astro Battle (formerly called Space Invaders), Football, Tornado Baseball, Bally Pin and many more. Cartridges you'll soon see on the market such as Galaxian, Music Maker I, Space Fortress, Gran Prix and Demolition Derby, Biorhythm, Pirate's Chase and Coloring Book employ refined programming techniques that promise to make them more exciting and realistic than anything we've done before.

More Control, Color, Sound Effects

The Arcade gives you more control over the action because it is the only video game that will accomodate up to four player control handles at once. Each handle has five switches (one on the trigger and four on the 8-way joystick control) and a potentiometer controlled by a knob integrated into the joystick. This puts all possible control of player inputs into one neat pistol grip handle that allows software designers to create more interactive games with greater speed and excitement. Mattel's controls, while neat and compact, will only accomodate two players and doesn't allow the speed of reaction that the Arcade's joysticks do. The Atari hand controls suffer from complete lack of foresight in their design, requiring their owners to buy a set of joysticks and a separate set of knobs. Depending upon the game being played, the player has to unplug the joystick and plug in the knobs or vice-versa. And, of course, there's only room for two players here, so players number 3 and 4 need not apply.

The tunes, realistic gunshots and laser fire sounds are created with the three-voice music synthesizer and sound effects generator. This advanced synthesizer allows professional software designers to multiplex any number of music frequencies with rapidly incrementing and diminishing noise values creating exciting sounds to complement any video display. The flexibility of the Arcade's sound synthesizer is far beyond that of other video games.

The Triple Processor System

While other video games use only one, the Arcade has three computer processors costing millions of dollars to develop. The central processing unit is the powerful Z-80 computer chip. This is the same central processor used in thousands of popular microcomputers, including the Radio Shack TRS-80. In addition, there are two custom chips created specifically for the Arcade.

The Video processor operates at 7 million cycles per second and increases the animation speed 20 times. This custom chip handles all color manipulation for better animation effects. With this extra processor, the Arcade is the only video game with professional, American standard NTSC video output for sharper images on your TV screen and full compatibility with all video recorders and broadcast equipment.

The Input-Output Processor, another custom chip, handles the joystick and keypad inputs and creates the sound effects. Full input control includes up to four 8-way joysticks with trigger, four analog-to-digital-converters (to scan and interpret the knob outputs) and a 24 key keypad. This chip also creates the special music and sound effects.

The Bally Basic Programming System

For over 3½ years users of the Bally Professional Arcade have utilized Bally Basic to the max in developing innovative software for their own games, business programs and utility programs to help them more fully understand their computers. Now, the New Bally Basic programming cartridge comes at no extra charge with every Bally Professional Arcade purchased, introducing the computer as a hobby or a tool to thousands of new Bally enthusiasts. For only $299.00 it will be possible to own a programmable computer with an interface to save your own programs on any cassette tape recorder.

Bally Basic is ideal for learning about computers because you can easily program colors, shapes, music and sound effects. Simple words like LINE and BOX make drawing on the screen simple and direct. You can select from 256 possible combinations in picking each of the two colors on the screen. The built in music system converts the keypad into a 3-octave music keyboard, including sharps and flats. You can also create laser blasts and other effects by controlling the synthesizer directly in your programs. Bally Basic is a fantastic learning tool, as Basic is a language that was created for the very purpose of training beginners in the use and programming of computers. The next step follows...

The ZGRASS-32 Computer Keyboard

The Zgrass-32, the long-awaited add-under component to the Bally Professional Arcade plugs into the Arcade to give you a full typewriter keyboard and number pad. You also get additional memory with 32K additional RAM and 24K ROM. The additonal RAM gives you more space for creating and storing longer programs.

The additional 24K ROM contains the powerful Zgrass language, a graphics assembler, a math package suitable for scientific and business calculations and the system software that makes this computer delightfully easy to use! Zgrass is a language written by Professor Tom DeFanti of the University of Chicago, which permits the user to accomplish complicated video graphics easily by prompting the programmer with its built-in teaching routines. The power of Zgrass in the marketplace promises to be even more diverse than the applications of the computer from the time of its introduction to the present day.

The Zgrass-32 will make history by being the first home microcomputer to offer a graphics language as standard equipment. Basic is clearly an instructional language designed to teach computer programming. In creating realistic graphics, Basic's limitations take tolerance to live with and tremendous creativity to overcome. From that point on, the computer itself has to wade through the countless devious Basic commands and interpret them before they can be executed, leaving you with a slower, less realistic and less esthetic graphics design than you can achieve using a language created for the purpose of designing graphics, such as Zgrass, Pascal, LOGO and Smalltalk. Other graphics languages are largely unforgiving and you must get the program right for them to work. Graphics is something you have to look at and change a few times before you decide it's right, as an artist does when painting or as you would arrange your furniture in the living room of your home. Zgrass gives you this freedom of getting a close approximation of what you want and going easily through successive changes until it is exactly what you want!

Zgrass... Dynamite in the Marketplace!

In the first place you have over 50,000 present owners of Bally Arcades out there who already have the top half of this add-under Zgrass computer in their hands. Most of them have been patiently waiting for over two years for us to slide this thing under their Arcades to finally give them some real computing power. These are creative people who have had to put up with the limitations of a 1.8K Basic long after they were ready to go on to a more useable computer with more memory. The software they'll be able to create using this new system will be staggering in its volume, complexity and realism! And their appreciation of the fact that it's available now after they've waited so long will be demonstrated by a strong demand for these units in advance of their availability in the marketplace.

Already we have reports from Bally Users Groups all over the country that people are pulling their Bally Arcades out of the closets, dusting them off and shoving their Apples, Ataris and TRS-80's over to make room on the counter for what's going to become a computer phenomenon. And the Zgrass-32 is going to have a strong attraction to non-computer-minded people! Notice all the equipment now on the market to interface with your TV just to entertain you? Videotape recorders and players, Videodiscs, Dish Antennas for direct from satellite reception, Cable TV networks with constant 24 hour entertainment and education. You don't have to be a computer enthusiast to appreciate what the Zgrass-32 can do to entertain. The graphics potential is unlimited when applied to making your own animated adventures and recording them frame-by-frame on videotape. It's very easy with the Zgrass language and the composite video output of this machine is perfectly synchronized by the Arcade's custom processing chips to be compatible with all video equipment. No other computer can make that statement.

For those who like to title their videotapes, the built in choice of character sets allows flexibility of design, color and movement in professional looking title and credit lines. The Bally Arcade has long been used by cable TV networks and microwave relay stations for printing messages on the screen over the local-origination channels, using graphics routines between messages and making a very pleasant impression with its extremely accurate color generator. The potential of this market is certainly as great as that of the computer hobbyist simply because of the larger number of participants in this group.

From the beginning programmer to the business oriented person who wants to dial into database networks Zgrass will allow the programming of picture data for the first time. We offer a machine with superb graphics at a much lower price than computers that are still programmed in the text-oriented Basic. We intend to encourage the third-party software producers to program for the Zgrass-32. Texas Instruments has demonstrated the folly of locking up their hardware to third party manipulation, thus hoping to sell their own software exclusively. Mattel appears poised on the brink of making the same mistake with their still-unavailable keyboard add-under. Astrovision plans to give the hobbyist programmer and the professional software people out there all the information they can assimilate about our product, to tap the genius that resides in the marketplace. It would be folly to assume that we could create the best software for everybody's needs! Encouraging the growth in numbers of Zgrass programmers will lead to a proliferation of software vendors and extend the applications of this machine to more users in all occupations.

George Moses