

For each program summarized on page one, submit: A Program Request Sheet, a program budget, and any supplementary materials you wish to attach. If you are requesting funds for more than one program, reproduce this page (either photocopied or typed) for each program.

1. Name of organization Experimental Television Center Ltd.
 Program title (as shown on page one) Center for Microprocessor Research
 Program priority number (as shown on page one) 2
 Name and telephone of person responsible for this program Ralph Hocking 607 723-9509
 Program starting date (as shown on page one) 7/1/77 Ending date 6/30/78
 Location (facility and address) Experimental Television Center, 164 Court Street, Binghamton
 County(ies) in which services will be offered. If more than one, estimate the dollar amount of requested NYSCA funds to be used per county facility in Broome; program activities available to artists and arts groups throughout New York State

2. Complete description of program or activity within this space.
 The Center proposes to formalize its program of research concerning microprocessors and their applications in the arts. This project would involve activities in three basic areas:
 1. continued design and development of the Center's microprocessor system and its interface with video and audio synthesizers; this system will be made available for use by artists; continued software development.
 2. consulting with individual artists and arts organizations concerning the construction of small format, low cost computer systems and their applications in video and other arts
 3. conducting workshops at the Center and around the State on theoretical and practical aspects of the design, construction and uses of microprocessors; dissemination of the research findings to interested groups and individuals; sharing of programming among artists and arts groups with similar systems.
 Responsibility for this program will be shared by Donald McArthur and Walter Wright.
 Please see attached for a further description of this program.

3. Attach a detailed program budget following the Budget Instructions in the Guidelines.
 Enter from your attached budget: Cost of program \$ 30,700.00 Amount requested \$ 19,700.00
 (These figures should agree with those shown on page one.)

EXPERIMENTAL TELEVISION CENTER LTD.

164 COURT ST.

BINGHAMTON NEW YORK 13901

607-723-9509

Program Request:

Center for Microprocessor Research

Since 1976, with support from the New York State Council on the Arts and the National Endowment for the Arts, the Center has been involved in the design and construction of an interface between an LSI 11 microprocessor and the Jones four channel colorizer as well as a 50 point switching matrix for video display. In the coming year an audio synthesizer with computer control capability will be constructed. The audio and video synthesizers may be separately controlled by the microprocessor or all three components can be related in a system. The basic research already being conducted is resulting in the construction of a computer system which is available to videomakers at the Center. This system will be flexible, low in cost and relatively easy to operate while permitting greater precision in image structuring.

The research has indicated potential applications of this kind of computer system in other arts. In recent months Donald McArthur and Walter Wright have worked with the Vasulkas in Buffalo and Synapse in Syracuse on the construction of computer-video systems and with Ithaca Video Project for the evaluation and redesign of a computer-controlled animation stand. In addition to the video centers already involved with or contemplating the use of microprocessors, other arts centers in the State could utilize the facility. Project examples which have already been proposed to us by individuals and groups include: (1) computer control over functions variables on video and audio systems (2) control over lighting systems for use by performance centers (3) control over animation processes in filmmaking and direct generation of images on film (4) control over mechanical devices for application in sculptural and environmental works.

As the needs and potential uses of computer control in the arts become more defined, the need for a place to develop and disseminate information becomes vital.

The Center will continue to develop the relatively simple and low cost system already in process. The software will be interactive to allow the artist to talk to the system using commands related to his/her own medium; this approach will eliminate the necessity for the artist to learn computer language. The individual artist may also work along with the programmer in the development of programming. The system developed at the Center will be made available to artists and will form a model for the design and development of other systems.

Research into a more complex and responsive system will continue. Hardware development being considered include: (1) programmable filter bank for image modification and enhancement (2) frame buffer (3) color encoder with variable I, Q and Y (4) pseudo content addressable memory with variable drift (5) multiplexed A/Ds and control D/As, slow speed (6) high speed A/Ds and D/As (7) high

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page 2

resolution, slow scan color photographic system (8) digital techniques for image enhancement (9) character generator with programmable type face (10) raster partitioning system. Software developments being considered include: (1) notation systems for image generation (2) interactive monitor system for editing sequences of switching and control voltage commands (3) heuristic programming techniques for identification of picture elements and responding to the identification process with either predetermined or randomly selected command sequences (4) meta-programming techniques for analyzing picture content and responding as above.

As a consulting center we can centralize and disseminate information to artists and arts groups concerning the purchase, design and construction of these systems and the development of software as well as provide a problem solving service for artists with already existing systems. With this guidance, individuals and groups can develop systems with a broad range of applications which are tailored to specific individual requirements. Throughout the program we would encourage the compatibility of systems which is already developing among the systems in Buffalo, Binghamton and Syracuse. This will permit easier exchange of software among artists and groups. Information can be further disseminated through a workshop program conducted at the Center and throughout the State for interested arts groups.