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System Development Foundation  
181 Lytton, Suite 210  
Palo Alto, California 94301

Request for Support for Ongoing Work at the Stanford University  
Center for Computer Research in Music and Acoustics (CCRMA)

(revised)

The "early funding" gift received by CCRMA from the System Development Foundation has not only met the immediate need for personnel and hardware support, but has allowed us to spend the time required to carefully evaluate our future in view of both the rapidly developing technology and the shared needs of the larger community. Therefore, the differences from the original proposal found here are the result of this evaluation. This budget represents a realistic baseline of operation for CCRMA and includes a modest acquisition of hardware to solve immediate system problems and to allow the development of a work station network as originally proposed. It will also give CCRMA a sound basis for participating in the anticipated VLSI computer music project. The proposed budget request is for a five year period, beginning September 1, 1982, with the largest part of the hardware request the first year.

Facility Operating Support

The scope of the scientific-musical interaction at CCRMA is reflected in the current population of ca. 40 active users distributed more or less equally between music (composition and musicology) and science (engineering, speech and hearing, computer science, and psychology). Experience has shown that the size of the user population at CCRMA is nearly optimum for the nature of the research and musical activities being pursued: it is small enough that intra-laboratory communication is easy, yet large enough to provide for a broad variety of interests and expertise. The support requested would provide the funds needed to maintain the continued operation of the facility and would assure a productive environment for ongoing work and development.

## Hardware Budget

The "early funding" gift received from SDF, along with lower anticipated expenses, NEA support, and gifts-in-kind, have allowed us to meet most of our critical hardware needs.

The revised hardware budget includes support to improve system reliability and to develop the workstation network:

1) two high quality tape drives for system loading and backup capabilities.

2) Leland Smith's valuable music manuscripting project, currently housed at Computer Science, has an immediate need to move from the SAIL computer facility and be integrated into the CCRMA facility. To accommodate the project a disk drive, disk packs, and printer plotter are required.

3) As the Computer Science Department at Stanford is connecting its large computers via Ethernet and developing the Motorola 68,000 based SUN personal computing stations, CCRMA would benefit greatly by following the same direction. The "SUN" work stations will be compatible with the proposed computer music VLSI project as well as immediately providing:

(a) an ideal environment for research in man-machine interfaces (front end) and associated software as in the original proposal,

(b) a high-level graphics and programming environment required for Professor Leland Smith's music manuscripting project, and

(c) C language compatibility with other computer music centers.

In 1983-84, there will be a high speed co-processor available for the work station and we have been advised (by Vaughn Pratt) that this addition to the SUN work stations will substantially increase their computational power.

Budget Proposal for System Development Foundation

CCRMA Facility Support (for 5 years)

1982-83

A. Facility Staff

1. administrative asst, Patte Wood, 50%
2. secretary, 50%
3. system programmer, Tovar
4. hardware engineer
2. audio technician

B. Research Staff

1. Director, John Chowning (3 mo @ [REDACTED])
2. Sr. Res. Associate, Loren Rush
3. post-doctoral fellows; Chafe, Gordon
4. research assistants (4 @ 7,500)  
(music, computer science, sp & hearing)

benefits (20.4%)

total salaries

C. Expendables

1. hardware maintenance & repair	\$40,000
2. computer and audio supplies	5,000
3. communication	3,000
4. publications and travel (seminars, visiting scholars, etc)	30,000
5. misc. supplies	2,000
total	<u>\$80,000</u>

D. Hardware

1. 10 sun workstations	60,000
2. 2 high performance tape drives	20,000
3. 300 mbyte CDC disk drive	12,000
4. 6 disk packs	7,200
5. 22" printer/plotter	20,000
	<u>6.5% tax 7,748</u>
total	<u>\$119,200</u>

TOTAL FOR 1982-83

\$ 479,557

CCRMA Budget (cont'd)

1983-84

A.&B. Salaries (10% increase)	\$249,768
benefits (22.1%)	55,199
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total salaries	\$304,967
C. Expendables (app. 8% increase)	\$ 85,000
D. Hardware	
signal processing hardware for SUN	50,000
TOTAL FOR 1983-84	\$ 439,967

1984-85

A.&B. Salaries (10% increase)	\$274,745
benefits (22.4%)	61,543
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total salaries	\$336,288
C. Expendables (app. 8% increase)	\$ 90,000
D. Hardware	
ethernet connection (campus)	4,000
TOTAL FOR 1984-85	\$ 430,288

1985-86

A.&B. Salaries (10% increase)	\$302,220
benefits (22.4%)	67,697
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total salaries	\$369,917
C. Expendables (app. 8% increase)	\$ 95,000
TOTAL FOR 1985-86	\$ 464,916

1986-87

A.&B. Salaries (10% increase)	\$332,442
benefits (22.4%)	74,467
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total salaries	\$406,909
C. Expendables (app. 8% increase)	\$100,000
TOTAL FOR 1986-87	\$ 506,909

CCRMA Budget (cont'd)

TOTAL REQUESTED FUNDING

TOTAL FOR 1982-83	\$ 479,557
TOTAL FOR 1983-84	439,967
TOTAL FOR 1984-85	430,288
TOTAL FOR 1985-86	464,916
TOTAL FOR 1986-87	506,909
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TOTAL COSTS	\$2,321,637
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