A PROPOSAL TO AMERICAN RESEARCH AND DEVELOPMENT CORPORATION 27 MAY 1957

digital computer corporation

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INTRODUCTION

This is a proposal for American Research and Development Corporation to finance the starting of a new company, Digital Computer Corporation.

OBJECTIVES

The objective of Digital Computer Corporation is to manufacture and sell electronic test equipment and high speed electronic digital computers. Emphasis will be placed on developing products which will be general purpose and have a wide variety of applications.

BACKGROUND

The founders have been employed at MIT Lincoln Laboratory in Lexington, Massachusetts for several years developing digital computers for use in military applications. Techniques developed by the founders at Lincoln Lab will be used as a starting point for the new company.

The plans for starting Digital Computer Corporation are divided into two phases Phase I will involve approximately four full time employees and four part time employees.

The primary goal of Phase I is to design, produce, and sell transistorized digital test equipment.

The secondary goal of Phase I is to design on paper the general purpose computer which will be built in Phase II and to obtain military study contracts which will lead to procurement of this type equipment.

MARKET FOR DIGITAL TEST EQUIPMENT

In about 1950 a compatible family of digital vacuum tube building blocks was designed at MIT Digital Computer Laboratory for use in work associated with the Whirlwind computer. Burroughs Corporation started manufacturing and distributing these building blocks soon thereafter. They are still manufacturing this same line of test equipment today. Their total sales of this equipment are not known, but include more than \$500,000 to Lincoln and probably the same amount to IBM. Other users of this test equipment include Sprague Electric, General Ceramics and many others. The Burroughs Corporation has built computers out of this test equipment, but the use of these building blocks has been limited by its large size, the heat dissipated and the expensive power supplies needed.

A line of transistorized test equipment which is compatible with these vacuum tube circuits will have a ready market in all owners of Burroughs test equipment as will as many other customers. Potential users consist of a) manufacturers of general purpose computers b) manufacturers of digital fire control systems c) atomic energy installations d) laboratories working on pulse circuits in general e) operators of telemeter data reduction facilities f) military development laboratories and g) component manufacturers.

Lincoln Laboratory is at the present time developing a line of transistorized test equipment, under the direction of one of the Digital Computer Corporation founders, that will be compatible with Burroughs and will eventually replace it. Very soon this equipment will be ready to be manufactured commercially. Lincoln Laboratory is expected to be one of the big customers.

PHASE II (DIGITAL TEST EQUIPMENT AND GENERAL PURPOSE COMPUTERS)

The initial goal during Phase II will be production of the first general purpose computer by Digital Computer Corporation. It is anticipated that this will soon be followed by additional production based on orders. A modest expansion of personnel will be made when Phase II is entered.

Phase II will be entered after one of the following conditions exist:

a) the test equipment business is operating at a profit,

b) a firm purchase order for a general purpose computer has been obtained.

It should be emphasized that Phase II can be entered anytime. It is anticipated that it will be possible to enter it during the first year.

The same general circuits that will be used in the test equipment line will be used in the general purpose computer to be produced in Phase II. Therefore the test equipment business can be considered a stepping stone toward the manufacture of the first computer. The computer's capacity and speed would be in excess of computers available today while the price (about \$400,000) would be significantly less. Initial models would be well suited for use in scientific computation and control applications. Later with the addition of a complete line of input output devices, this same basic computer will also be suited for use in business applications.

The logical design of this computer will be prepared as part of Phase I. The actual construction will not start until Phase II. The reason for this is to minimize the financing required for starting Digital Computer Corporation.

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Phase I of Digital Computer Corporation can be entered with initial cash of \$91,200.

First Quarter Budget

I	nitial Charges			
	Legal fees		\$500	
	Filing fee and organization	tax	200	
	Painting and partitioning		500	
	Library		200	
	Office supply stock		300	
		Total		\$1,700
C	apital Equipment			
	Machines		\$2,800	
	Special Tools		900	
	Small Tools		300	
	Test Equipment		1,800	
	Office Machines		1,800	
	Furniture (Leased with opti-	on to buy)		
		Total		7,600
M	anufacturing Parts			
	Transistors		5,000	
	Electronic parts		4,500	
	Mechanical parts		2,500	
	Miscellaneous		1,000	
		Total		13,000
M	onthly Operating Cost			
	Salaries and wages		4,520/mo.	
	Accountant service		200/mo.	
	Legal fees		100/mo.	
	Rent, insurance, utilities and	d misc. overhea	d 500/mo.	
	Travel		400/mo.	
	Advertising		400/mo.	
	Office supplies		50/mo.	
	Furniture rent		130/mo.	
		Total	6,300/mo	
	Three months @ \$6,300/month			18,900
st Qi	uarter Total Cash Required			41,200
ser	ve for Contingencies			50,000
	CALL TO CALL THE STATE OF THE S			
ase	I Total Cash Required			91,200

Assuming that Phase I lasts for one year, a profit and loss statement and balance sheet would look as follows.

ESTIMATED PROFIT AND LOSS	STATEMENT AND BAL	ance sheet (phase I))

ESTIMATED PROFIT AND LOSS STATEMENT AND BALANCE SHEET (PHASE I)								
	Initial	lst	quarter	2nd quarte	r 3d quarter	4th quarter		
Profit and Loss State Net Sales Manufacturing Cost Materials Labor Overhead Change in Inventor		13,000 13,560 7,040 13,000		40,000 12,000 18,000 8,000 4,000 34,000	65,000 22,000 23,000 10,000 5,000 52,000	80,000 30,000 26,000 11,000 8,000 59,000		
Gross Profit Tax Net Profit			20,600 0 20,600	6,000 0 6,000	13,000 0 13,000	21,000 5,000 16,000		
Balance Sheet Assets								
Current Cash 91, Inventory Fixed	91,200			40,000 17,000	40,000 22,000	40,000 30,000		
Equipment Total Liabilities Net Worth	91,200	7,600	0,6 00	9,600 66,600	17,600 79,600	25,600 95,700		
Common 3 Stock 91, Earned	200	60,600	911	66,600	79,600	91,200		
Surplus Total	91,200	6	0,600	66,600	79,600	4,500 95,700		

When Phase II of Digital Computer Corporation is entered about \$250,000 additional financing will be required. This may be obtained in any combination of the following ways:

a) purchase of additional stock by American Research and Develop-

ment Corporation

b) profits from test equipment business

c) other financial sources.

A four year profit and loss statement and balance sheet beginning when Phase II is entered is shown below.

PROFIT AND LOSS	1st year		2nd year		3rd year		4th year	
Net Sales Manufacturing Cost Materials Labor Rent, Ins., Util. Over Depreciation Advertising Travel	164,000 144,000	100,000	574,000 565,000 70,000 15,000 10,000	,200,000	3,640,000 910,000 115,000 20,000 10,000 50,000		1,968,000 1,028,000 190,000 30,000 25,000 85,000	
Add Beginning Inven.	388,200 0		1,244,000 82,000		2,745,000 328,000		3,326,000 984,000	
Less Final Inven.	388,200 82,000 306,200		1,326,000 328,000 998,000		3,073,000 984,000 2,089,000		4,310,000 984,000 3,326,000	
Gross Profit Less Interest on Loan	0	93,800	0	202,000	0	,511,000	50,000	874,000
Less Profit Sharing	9,380	93,800 84,420	20,200	202,000	151,100	,511,000 ,359,900	382,400	824,000
Less Corp. Tax	38,000		91,800		682,000		1,750,000	
Net Profit		46,420		90,000		677,900	1,	691,000
Reinvested Profit Distributed Profit		46 ,4 20 0		90,000 0		677,900 0	1,	491,000 200,000
BALANCE SHEET(End of Yes	ar)		The same					
Assets Current Cash Inventory	266,620 82,000		99,620 328,000		171,520 984,000		363,120 984,000	
Fixed Equipment Plant and Site Total	39,000	87,620	150,000	77,620	300,000	455,520	500,000 1,600,000	447,120
Liabilities Current Accounts Payable	20,000		20,000		20,000		20,000	
Long Term Loan	0		0		0	NAT.	500,000	
Net Worth Common Stock Earned Surplus Total	341,200 26,420	87,620	441,200 116,420 5	77,620	641,200 794,320	455,520	641,200 2,285,920	447,120

FACILITIES

All operations will be started in a leased area of about 3,000 square feet, preferably near Lexington. Several potential locations have been investigated. Facilities for assemblying test equipment, doing etched wiring and testing will be established immediately. Those manufacturing steps requiring expensive machinery will be done initially by outside organizations. Due to the large number of such organizations in the Boston area, this procedure has worked very satisfactorily at Lincoln Lab.

SALES

Initial emphasis will be placed on sales to owners of compatible units. This would be done mainly through personal contact. Nation wide sales programs centered around advertising would be started after approximately nine months had passed. Descriptive literature and demonstrations of the equipment would be available within three months.

